The future of the meat sector in France

Four scenarios for 2035

Authors:

Michele Schiavo (IDDRI), Sylvain Doublet (SOLAGRO), Baptiste Gardin (IDDRI),
Xavier Poux (ASCA), Aurélie Catallo (IDDRI), Pierre-Marie Aubert (IDDRI)

ASCA BASIC IDDRI I4CE Solagro

Key messages

1 **This *Study* examines four contrasting scenarios for the three main French meat sectors (beef, pork and poultry) by 2035.**

- The Business-As-Usual (BAU) scenario illustrates the consequences of continuing current dynamics, without any major changes in public policy or industry strategies.
- The Efficiency First scenario is based on economies of scale, specialization and territorial concentration, combined with the adoption of new technologies aimed at increasing efficiency per kilogram of product.
- The Feed No Food scenario aims to minimize competition between animal and human food while maximizing the ecosystem services provided by livestock farming. This scenario results in territorial de-specialization, more moderate production and more diversified livestock farming systems.
- The Rural Renaissance scenario combines long and short supply chains and rests on a dualization of the sectors, combining local development and diversification of livestock systems, while concentrating standardized production in hubs.

2 **The *Study* uses modelling tools that integrate the biophysical impacts of production systems as well as the structural evolution of farms and agri-food industries based on technical and economic indicators, in order to assess the strengths and weaknesses of each scenario.**

Key messages

3 **None of the scenarios fully addresses all of the issues raised in the public debate on livestock farming in France.**

- The **BAU scenario** offers marginal environmental gains, mainly thanks to the technical progress expected between now and 2035, but these are accompanied by an erosion in the number of agricultural workers, livestock farms and industrial processing units, linked to a continued loss of competitiveness in the French livestock sector.
- The **Efficient First** scenario performs quite well in terms of reducing greenhouse gas emissions, at the expense of other environmental indicators. It allows for the highest supply rate at equal demand, but leads to a significant reduction in the number of jobs.
- The **Feed No Food** scenario performs well on multiple environmental criteria, including reducing emissions, preserving biodiversity, farm autonomy and limiting soil and water pollution. However, it results in a significant decline in production. Compared to the BAU scenario, employment changes are positive for the agricultural sector but negative for the industrial sector.
- The **Rural Renaissance** scenario has mixed environmental effects, very similar to those of the BAU scenario, but differs by positive economic and social impacts on agricultural demographics and the industrial workforce.

Key messages

4 Three distinct demand trends were considered (BAU, TRAMe and TYFA to 2035), each of which was associated with all scenarios according to a matrix logic. With the BAU demand, the meat sector as a whole cannot follow a trajectory compatible with the National Low-Carbon Strategy 3 (SNBC 3). On the other hand, TYFA 2035 demand systematically allows for a compatible trajectory, while TRAMe demand falls between the two. This points to the need to consider both supply and demand side measures to support the transition of the sector.

5 The *Study* highlights the fact that any vision for the future of French livestock farming involves compromises, which must be made explicit in the context of a calm and informed public debate.

6 Implementing all scenarios, except the Business as Usual (BAU) scenario, would require profound changes to either the political framework (Feed No Food and Rural Renaissance) or the political instruments supporting livestock farming (Efficiency First, Feed No Food and Rural Renaissance), or an economic context favourable to investment (Efficiency First and Rural Renaissance), or a combination of the three.

Contents

Acknowledgements

The creation and analysis of these scenarios were made possible thanks to contributions from I4CE, Basic, Solagro and AScA.

The authors of this study would like to thank the interprofessional organizations Anvol, Inaporc and Interbev, as well as the technical institutes Itavi, Ifip and Idele, for their participation in a series of workshops, which provided an understanding of their respective sectors. However, these organizations do not share all of the conclusions drawn from the analysis.

1. Introduction

Why develop foresight scenarios for the meat sector?

Lessons learned from retrospective analysis

Why develop foresight scenarios for the meat sector?

- The livestock sector faces multiple demands: feeding the population, contributing to food culture and France's international reputation, improving the trade balance, maintaining landscapes, and improving animal welfare, while reducing its environmental footprint.

- Faced with these, sometimes contradictory, expectations, public debate too often becomes sterile and highly polarized, in which the interests underlying the vision defended by the other "camp" are given little consideration.

- In this context, this *Study* provides an in-depth analysis of the biophysical, sociotechnical, and economic issues associated with four contrasting scenarios for the evolution of French meat sectors by 2035.

Lessons from retrospective analysis

- The retrospective analysis published by IDDRI in 2024 (Aubert and Poux, 2024) shows that meat has become an increasingly commodified product: standardized and traded on ever more open markets, making price competitiveness a major determinant of supply–demand balances.
- This process of commodification enabled strong growth in meat value chains up to the 1990s, driven by family farming and thereby meeting rising domestic and global demand.
- It is the poultry sector, led by chicken, that experienced the most significant growth dynamics, becoming the most consumed meat in France in 2024.
- Nevertheless, this development has also resulted in increased industrialization and efficient territorial concentration from an economic standpoint, but with significant environmental impacts.
- Since the 2000s, the competitiveness of French meat sectors has been eroding, leading to growing difficulties both in export markets and on the domestic market.

2. Methods

Framework

The analytical framework within which the scenarios are set

Modelling tools

Scenario assumptions

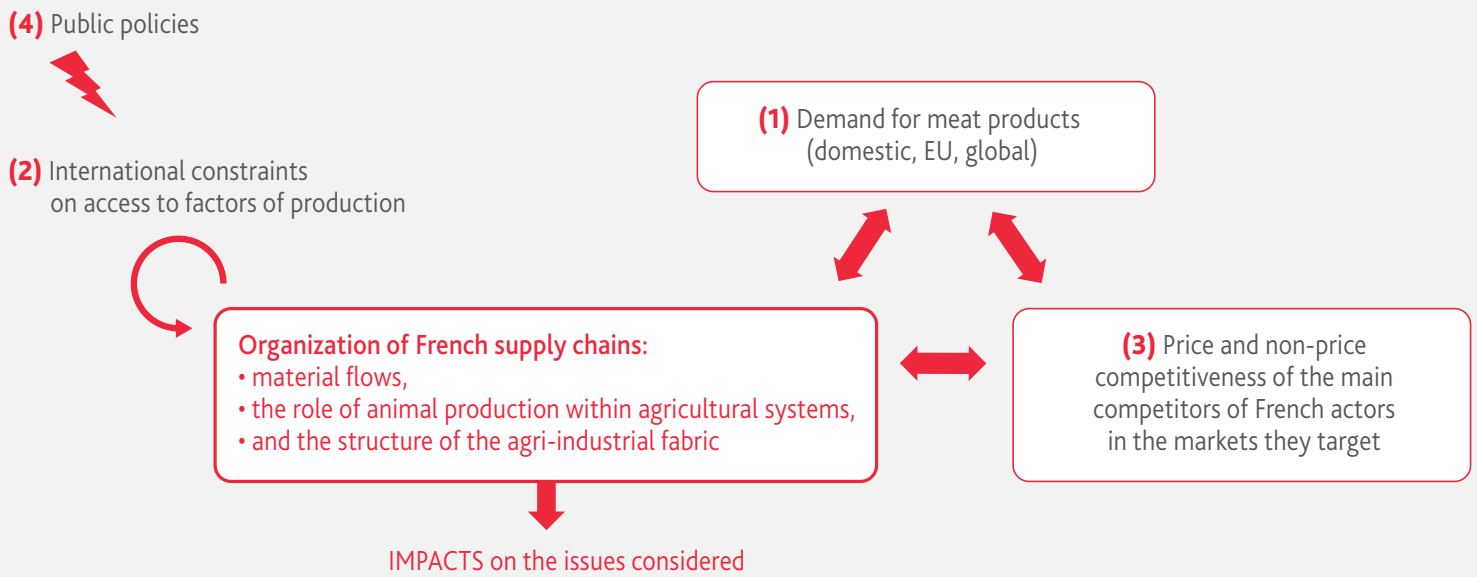
Framework

- We analyse possible developments in the bovine, pig and poultry sectors in France.
- Horizon 2035: a short-term horizon, in order to inform the sectors' future strategic directions (no radical change from the current situation).
- The approach is based on supply scenarios: the assumptions primarily concern changes in agricultural and industrial production.
- Four contrasting scenarios are modelled, including a **Business-As-Usual (BAU) scenario** (Aubert P-M., Poux X., 2024). This scenario illustrates the consequences of a continuation of current trends, without any major changes in public policy or sector strategies.
- These supply scenarios are then compared with three demand scenarios in a "sensitivity test" approach:
  - BAU Demand (Aubert P-M., Poux X., 2024)
  - TRAMe demand (Saujot M., *et al.*, 2025)
  - TYFA demand (to 2035) (Poux X., Aubert P-M, 2018)

The analytical framework within which the scenarios are set

- The assumptions underlying the scenarios are based primarily on changes in the organization of French supply chains (shown in red in the diagram).
- In reality, the organization of the sectors results from the interplay between various factors (1), (2), (3) and (4) in the diagram.
- As part of our foresight exercise, we characterized a posteriori the changes required in these four determinants to correspond to the sector organization described by each scenario.
- The necessary changes to these determining factors are outlined in the strategic analysis presented at the end of this report.

The four factors determining the organization of the meat sector and their impacts



Source: Aubert P-M., Poux X. (2024).

Modelling tools

- The added value of this analysis is its ability to coherently bring together different dimensions of the agrifood system (production systems, farms, agri-food industries).
- Three simulation tools were used:
  - ClimAgri (Solagro): biophysical impacts of production systems.
  - Sp_Calc (IDDRI): farm structure.
  - IAA_Calc (IDDRI): agri-food industry structure.
- The modelling of cattle "demographics" is based on a simulation tool developed by IDELE, the French Technical Institute for Livestock.
- Combining these tools makes it possible to calculate environmental and structural (technical-economic) indicators based on assumptions about the evolution of production and production systems provided by the modeler, who can be seen as a central planner.
- Although this approach is well-suited for foresight analysis and offers great flexibility for exchanges with experts and scenario design, it is not intended to optimize the behavior of economic agents, nor to assess the impact of scenarios on product prices, farmers' income, wages, or social welfare.
- Sectors other than the meat value chains are modeled *ceteris paribus* (with crop areas maintained, no changes in land use, constant yields, etc.).
- The issue of animal welfare is not assessed nor modelled but is the subject of a qualitative analysis (Appendix).
- More information on how these tools work and their settings is available in the methodological annex.

Scenario assumptions

- The four scenarios are based on specific assumptions concerning changes in:
  - production volumes, by species and in total;
  - the spatial location of animal production (France divided into three geographical regions);
  - livestock farming structures, based on a typology of farms in each of the three meat sectors;
  - the adoption of technical levers for reducing greenhouse gas emissions;
  - the product mix of meat products and the structure of the industrial fabric.

- The main assumptions for each scenario are detailed in the following pages.

3. Scenarios for 2035

The logic behind the four modelled scenarios

BAU scenario, Efficiency First, Feed No Food, Rural Renaissance

Changes in meat production (2000-2035)

Location of production

Technical levers activated

Technical performance

The logic behind the four modelled scenarios

BAU	Continuation of current trends: erosion and territorial concentration of production, as well as the progressive disappearance of small farms and agri-food industries.
Efficiency First	The search for efficiency *through* improved feed conversion ratios (*) and the adoption of emission reduction technologies, coupled with a logic of economies of scale and territorial specialization.
Feed No Food	Minimization of competition between animal feed and human food, maximization of ecosystem services, territorial de-specialization of livestock farming.
Rural Renaissance	The livestock sector acts as a driver of territorial economic dynamics, by linking long and short supply chains in a dualistic approach.

(*) Amount of feed consumed (in kg) to gain one kilogram of live weight.

BAU

General logic	• Continuation of current dynamics without the introduction of new public policies or specific sector strategies. • Reinforcement of the trend toward "commodification" of production.
Production trends	• Gradual loss of competitiveness in the meat sectors, increasing the risk of higher imports. • Decline in bovine and pig production due to limited generation renewal, social acceptability, and environmental constraints. Poultry production is the only sector showing a slight increase thanks to the development of the chicken industry.
Location of production	• Continued geographical specialization of animal production, concentrated in western France
Technical performance	• Improvement in feed conversion efficiency in the pig and poultry sectors, but only for the largest and most productive farms. • Increase in carcass weight for cattle and maintenance of current trends regarding herd composition (animal types, live cattle exports, etc.).
Types of livestock farming	• Erosion of small- and medium-sized structures at both the farm and industry levels. • In a difficult context, small farms, often located outside the West, exit the market, contributing to increased concentration of livestock production.
Agri-food industries	• Continuation of current trends in product mix and concentration of production in large processing units.

Efficiency First

General logic	• The main objective is to increase climate and production efficiency per kilogram of livestock products.
Production trends	• Pig production remains stable, poultry production increases more than in the BAU scenario, and bovine production decreases.
Location of production	• There is a continued territorial concentration of production in the West, even more pronounced than in the BAU scenario.
Technical performance	• Feed conversion efficiency improves. For pigs and poultry, the most efficient systems are widely adopted. In the bovine sector, efficiency improves for 30% of the dairy herd and young cattle, with a reduction in the share of grass in the diet. Anaerobic digestion and other emission-reduction techniques are adopted by 20–40% of farms. • General improvement in feed conversion efficiency and sow prolificy. • Reduction in the share of grass in the cattle diet to 50% (compared with 63% in 2020).
Types of livestock farming	• Farms become more standardized and significantly larger. Intensification and concentration accelerate, with the majority of medium-sized farms and mixed systems disappearing in favour of very large and specialized farms. Productivity is maximized through increased use of technologies, reducing reliance on internal resources while maintaining high dependence on external inputs such as feed, fertilizers, and pesticides.
Agri-food industries	• Volumes processed by large processing units increase, leading to greater concentration of flows and improved labour productivity through technical progress and economies of scale.

Feed No Food

General logic	• The main objective is to reduce competition between human and animal feed and increase ecosystem services provided by agrosystems. Permanent grasslands are maintained to support more grass-based ruminant production, with lower stocking rates.
Production trends	• Production of monogastrics, particularly poultry, decreases because they are less able to utilize by-products and therefore compete more directly with human food. Bovine production is reduced, with total livestock units adjusted to a target of 0.85 LU/ha of pastureland area (compared to 1.31 today), considered more favorable to biodiversity.
Location of production	• Production areas become less specialized.
Technical performance	• Technical levers already present in the BAU scenario are adopted, but anaerobic digestion occurs at a lower level. Large specialized farms disappear and are replaced by smaller, more feed-autonomous farms. Cattle systems become more grass-based. In pigs and poultry, there is a slight increase in alternative systems, without adopting "high-performance" models. • Maintenance of current systems, with a slight increase in alternative systems (organic, Label Rouge, and other quality labels) for monogastrics. • Increased grass-based fattening for cattle: 87% of the diet (compared with 63% in 2020). • For pigs, an increase in the share of by-products in the diet at constant feed conversion efficiency: from 13% to 25%.
Types of livestock farming	• Farms become less specialized, and the number of animals per farm decreases.
Agri-food industries	• The share of production processed by small processing units outside western France increases.

Rural Renaissance

General logic	• The main objective is to transform the livestock sector to revitalize rural communities while maintaining a strong agricultural dynamic across landscapes.
Production trends	• Pig and poultry production evolves similarly to the BAU scenario. Bovine production decreases less than in the BAU scenario, with the breeding herd equivalent to that of BAU. Calf exports are reduced in favour of increased grass-based fattening within France.
Location of production	• The spatial distribution of livestock remains unchanged compared to the BAU scenario.
Technical performance	• Technical levers are adopted at levels comparable to the BAU scenario. High-performance systems appear, as in the Efficiency First scenario, but to a lesser extent. Alternative systems also expand. • Dualization of production: coexistence between efficient systems and “alternative” systems. • Grass-based fattening of calves from crossbred cattle.
Types of livestock farming	• Different models coexist: standard systems continue specialization, enlargement, and concentration, while diversified systems integrate non-livestock activities such as tourism, education, on-farm processing, and direct sales. Quality labels are further developed, especially those linked to territorial identity (PGI, PDO, STG, etc.).
Agri-food industries	• Increase in the share of production processed by small food processing units outside western France, as in the Feed No Food scenario. • Strong growth in small secondary processing units, which capture a growing share of high value-added production. • Slaughter: decline in the share of industrial poultry slaughtering in favour of on-farm slaughtering. • Charcuterie: increase in production and marketing, particularly in direct sales. • Poultry: increase in the share of fresh whole poultry and secondary processed products.

Changes in meat production

Efficiency First

- **Bovine cattle:** continued reduction in the number of breeding cows (as in the BAU scenario), partially offset by a decline in live cattle exports, with more cattle being fattened in France.
- **Pigs:** current production levels maintained thanks to efficiency gains.
- **Poultry:** sharp increase in chicken production (+24%, roughly double the BAU scenario), while other poultry continues to decline (-15%).

Feed No Food

- **Bovine cattle:** more pronounced reduction in production than in the BAU scenario; highly grass-based diet; moderate reduction in exports of dairy calves and store cattle (broutards) to allow increased grass-fed finishing in France.
- **Pigs:** production decreases (-15%), with a higher share of by-products in feed.
- **Poultry:** particularly sharp decline, as the sector is heavily dependent on imported feed (-25% chicken, -30% other poultry).

Rural Renaissance

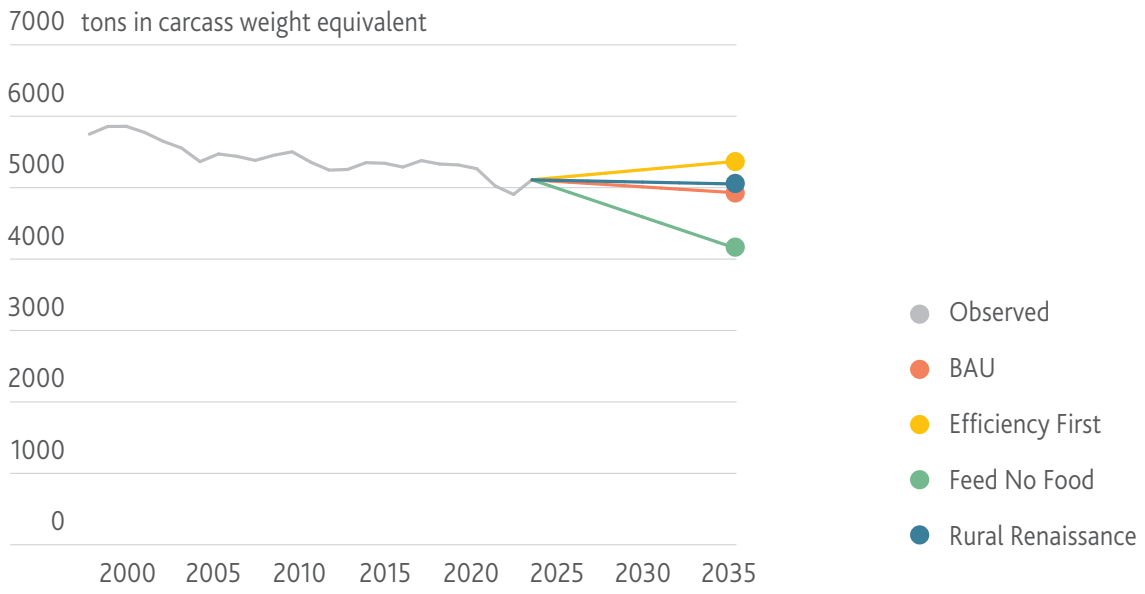
- **Bovine cattle:** breeding herd remains stable compared to the BAU scenario, but exports of live calves are reduced to favor finishing in France.
- **Pigs and Poultry:** production volumes equivalent to those in the BAU scenario.

Trends in meat production

	2020	BAU	Efficiency First	Feed No Food	Rural Renaissance
Bovine cattle	0%	-22%	-13%	-29%	-14%
Pork	0%	-7%	0%	-15%	-7%
Poultry	0%	2%	11%	-27%	2%

Changes in meat production

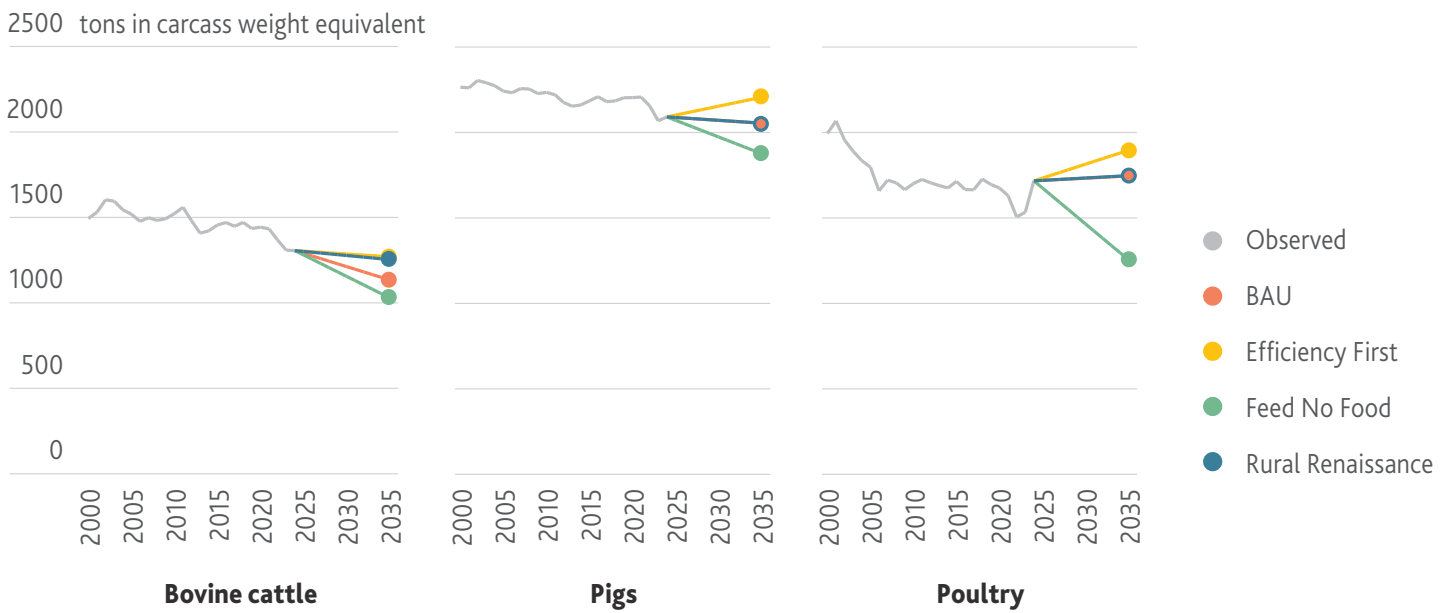
(2000-2035)



Source: Agreste for observed data.

Changes in meat production

(2000-2035)



Source: Agreste for observed data.

Location of production

Efficiency First

- Increased territorial concentration of bovine, pig, and poultry herds in western France.

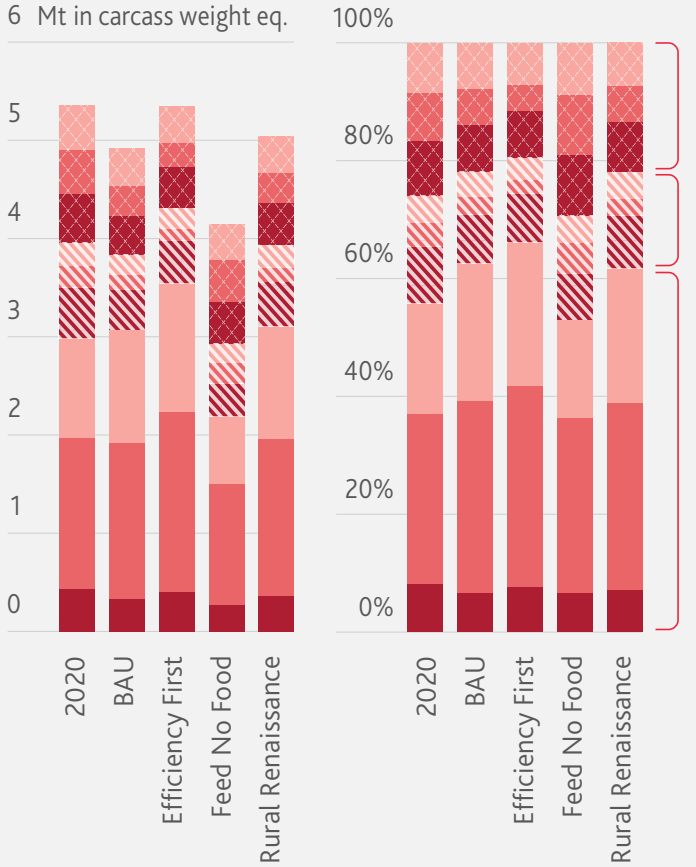
Feed No Food

- Geographic de-concentration of livestock.
- Bovine cattle: allocation of the herd in the Field Crops Area to restore grassland levels to those of 2000, i.e., +10% grassland area compared to 2020.

Rural Renaissance

- Unchanged spatial distribution, identical to that the BAU scenario.

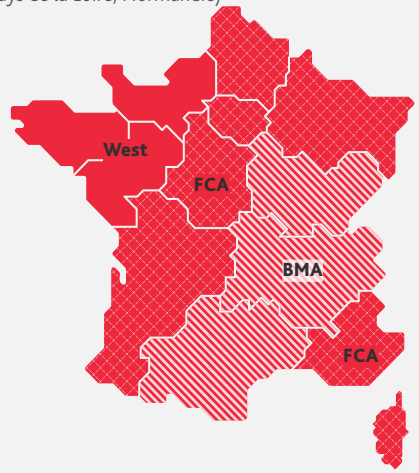
Spatialization of production



FCA Field Crops Area + Corsica
(Nouvelle-Aquitaine, Centre-Val de Loire, Île-de-France, Hauts-de-France, Grand-Est, Provence-Alpes-Côte d'Azur, Corse)

BMA Bovine Meat Production Area
(Auvergne-Rhône-Alpes, Bourgogne-Franche-Comté, Occitanie)

West
(Bretagne, Pays de la Loire, Normandie)



Technical levers activated

Efficiency First

- Greater adoption of technical levers for reducing greenhouse gas (GHG) emissions compared to the BAU scenario.

Feed No Food

- Adoption of technical levers at the same level as in the BAU scenario, with the exception of reduced use of anaerobic digestion.

Rural Renaissance

- Adoption of technical measures at the same level as in the BAU scenario.

Bovine cattle

	2020	BAU	Efficiency First	Feed No Food	Rural Renaissance
Manure Anaerobic digestion Beef cattle	0%	10%	20%	5%	10%
Manure Anaerobic digestion Dairy cattle	0%	10%	20%	5%	10%
Direct burial of manure	0%	20%	40%	20%	20%

Porks

	2020	BAU	Efficiency First	Feed No Food	Rural Renaissance
Pt coverage	10%	20%	40%	20%	20%
Manure Anaerobic digestion	10%	20%	40%	15%	20%
Direct burial of manure	10%	20%	40%	20%	20%
V-shaped manure scraper system	10%	20%	40%	20%	20%

Meat chicken

	2020	BAU	Efficiency First	Feed No Food	Rural Renaissance
Pit coverage	10%	20%	40%	20%	20%
Manure Anaerobic digestion	10%	20%	40%	15%	20%
Direct burial of manure	10%	20%	40%	20%	20%

Technical performance

Efficiency First

- General improvement in feed conversion ratio (FCR) and sow prolificacy.
- Reduction in the share of grass in the bovine diet: 50% (compared to 63% in 2020).

Feed no Food

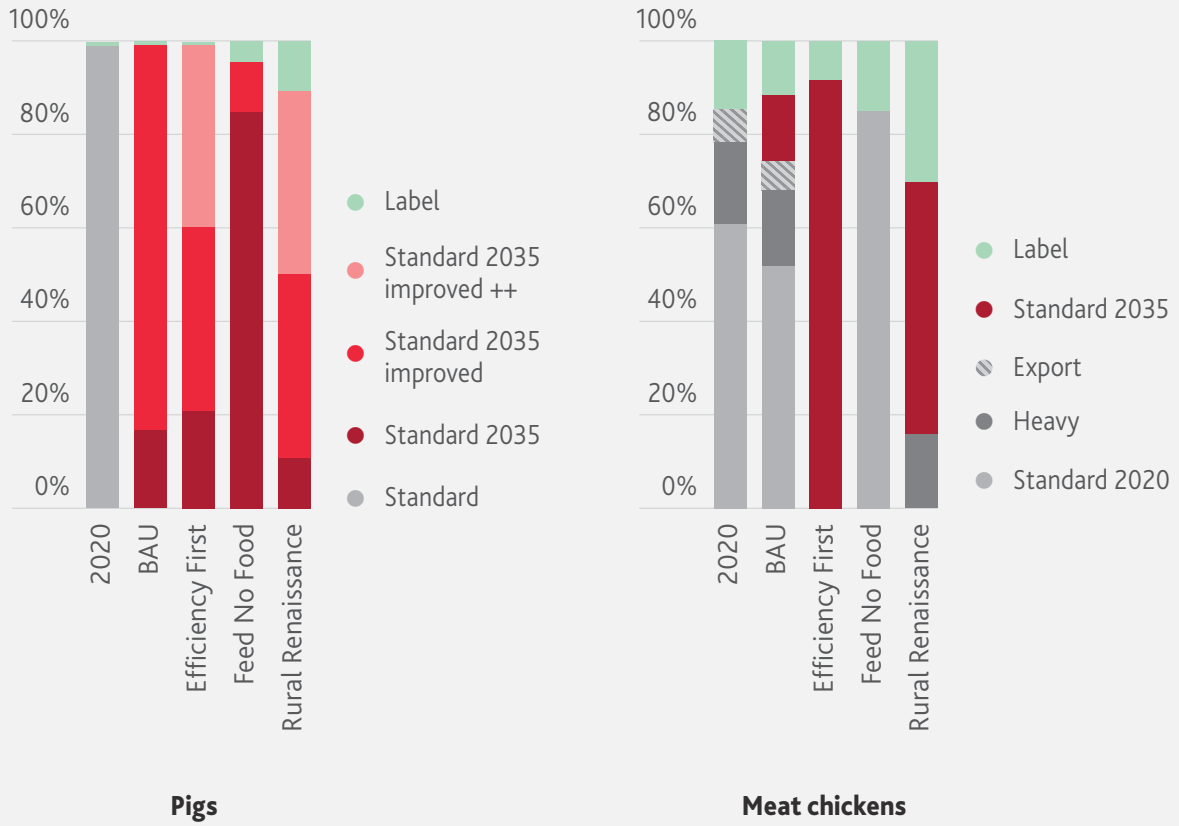
- Maintenance of current systems, with a slight increase in alternative systems (organic, Label Rouge, other labels) for monogastrics.
- Strengthened grass-fed finishing for bovines: 87% of the diet.
- For pigs, increase in the share of by-products in the diet at constant FCR: from 13% to 25%.

Rural Renaissance

- Dualization of production: coexistence of “efficient” and “alternative” systems.
- Grass-fed finishing for calves from crossbred cattle.

More information on the technical characteristics of the systems is available in the methodological annex .
For poultry other than meat chickens, a single system was considered.

Share of production in tons (carcass weight equivalent)



Pigs **Meat chickens**

4. Sensitivity test on demand

Demand scenarios tested

Supply rate

Meat supply rate (2000-2035)

Demand scenarios tested

Each supply scenario was compared with three demand scenarios using a "sensitivity test" approach.

The demand scenarios used are:

BAU Demand

(Aubert P-M., Poux X., 2024): continuation of the meat consumption trend of the last 5 years (2020-2024).

TRAMe demand

(Saujot M., *et al.*, 2025): reduction in meat consumption, particularly beef and pork.

TYFA demand (to 2035)

(Poux X., Aubert P-M, 2018): midpoint of TYFA demand in 2050. Significant reduction in meat demand for meat, with more marked declines for monogastric animals.

Change in demand (2020 = 100)

	2020	BAU	TRAMe	TYFA 2035
Bovine cattle	100	81	81	76
Pigs	100	94	84	74
Poultry	100	144	98	66
Meat	**100**	**108**	**88**	**72**

Supply rate

Combining supply and demand scenarios enables the supply rate to be measured (i.e. the ratio of domestic production to consumption).

The red boxes highlight a negative supply rate = France is unable to meet its own domestic demand.

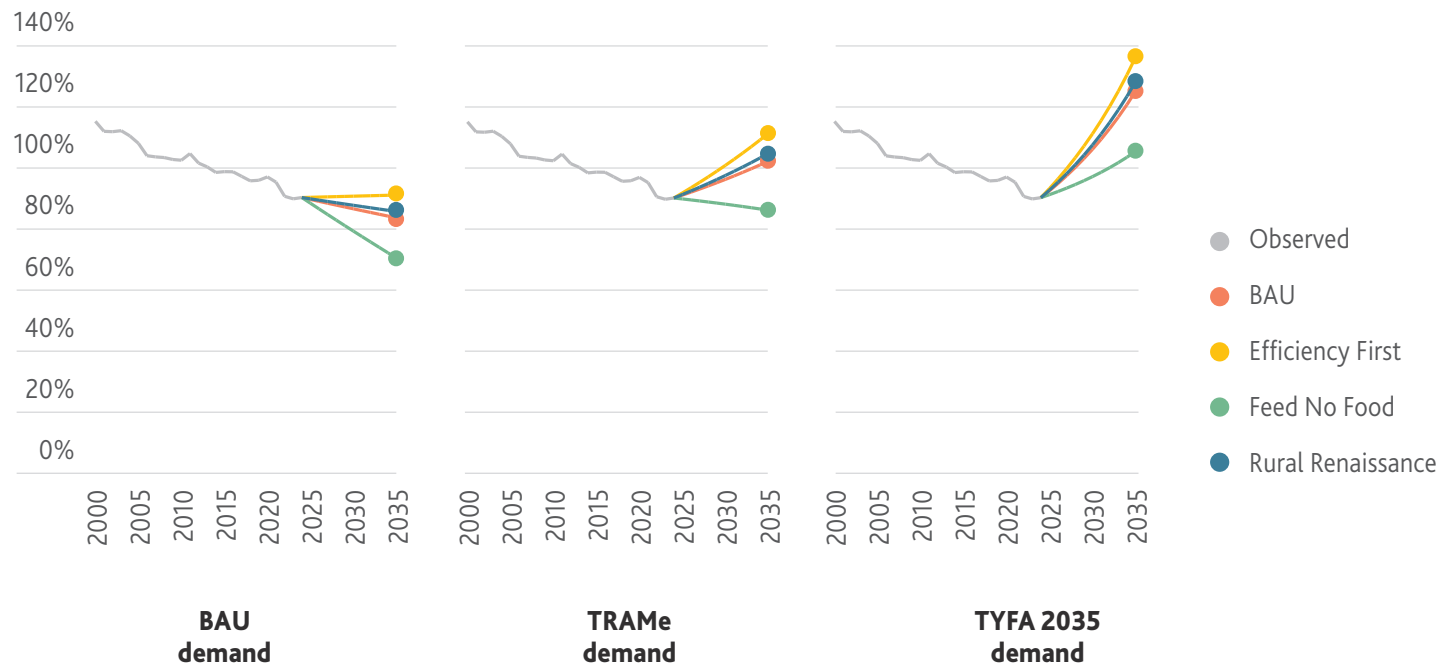
The green boxes highlight the opposite dynamic.

Supply rate

		2020	BAU	Efficiency First	Feed No Food	Rural Renaissance
 Bovine cattle	2020	97%				
	BAU		94%	105%	85%	104%
	TRAMe		93%	104%	84%	103%
	TYFA 2035		100%	112%	91%	111%
 Pigs	2020	105%				
	BAU		103%	111%	94%	103%
	TRAMe		116%	125%	106%	117%
	TYFA 2035		131%	140%	119%	131%
 Poultry	2020	90%				
	BAU		64%	70%	46%	64%
	TRAMe		95%	103%	68%	95%
	TYFA 2035		140%	152%	100%	140%
Meat	2020	**98%**				
	BAU		**83%**	**91%**	**70%**	**86%**
	TRAMe		**102%**	**111%**	**86%**	**105%**
	TYFA 2035		**125%**	**136%**	**105%**	**128%**

Meat supply rate

(2000-2035)



5. Environmental indicators

Choice of indicators

GHG emissions

Nitrogen surplus

Land used for animal feed

Grassland areas

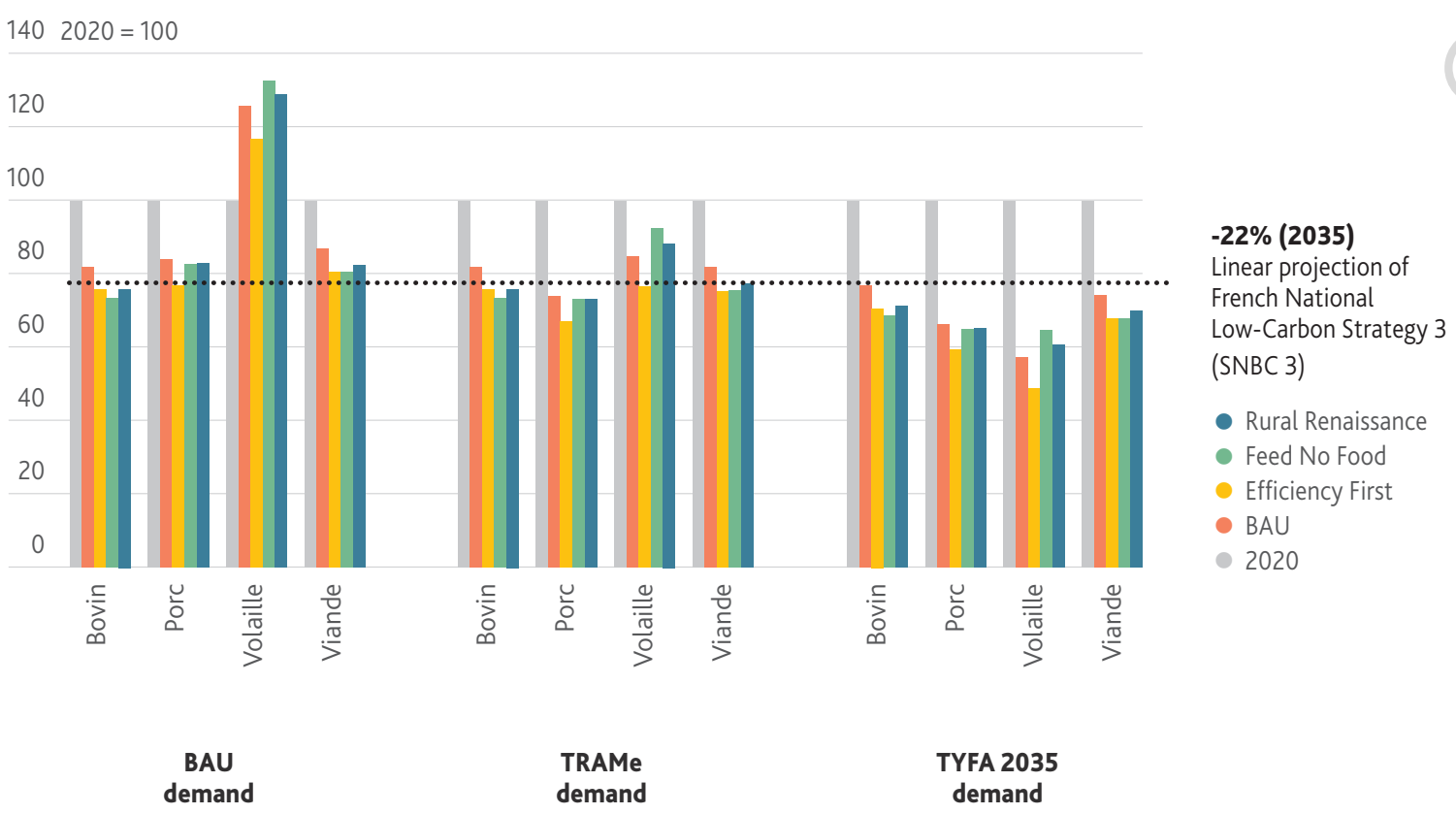
Choice of indicators

Three key indicators have been selected to shed light on the major challenges associated with livestock farming and natural resource management.

- GHG emissions: The agriculture/forestry sector is responsible for 21% of emissions in France. Livestock farming is directly responsible for 60% of these emissions (CITEPA, 2025), not including its indirect impacts through fertilization and the production of plants for livestock feed.
- Nitrogen surplus: Nitrogen surplus, mainly caused by agricultural fertilization and manure management, disrupts ecosystems by promoting algae proliferation, water pollution, soil acidification and biodiversity loss. It also contributes to greenhouse gas emissions (Sutton *et al.*, 2011; Leip *et al.*, 2023).
- Land for animal feed (arable land and permanent grassland): Livestock farming benefits from a large amount of agricultural land for animal feed: 52% of the utilized agricultural area in France is devoted to livestock farming, not counting the areas abroad through the imports of feed (GIS Avenir Elevages, 2022).

GHG emissions

CO_2 equivalent including net imports of emissions



GHG emissions

CO_2 equivalent including net emissions imports

- All future scenarios lead to a reduction in emissions compared to 2020, except for poultry under a BAU demand.
- Under a BAU demand, the meat sector as a whole cannot reduce its emissions enough to meet the targets set by the French Low-Carbon Strategy 3 (SNBC 3). Only the bovine and pig sectors can achieve emission reductions compatible with SNBC 3 under a BAU demand.
- Bovine cattle: compatibility is ensured for all three non-BAU scenarios, thanks to reduced consumption combined with efficiency gains and a more grass-based diet.
- Pork: compatibility is only possible under the Efficiency First scenario, relying almost entirely on efficiency gains.
- TYFA 2035 demand systematically allows the sector to follow a trajectory compatible with SNBC 3.

GHG emissions: index (2020 = 100)

CO_2 equivalent including net imports of emissions

Oui / Non — Compatibility with trajectory SNBC3 to 2035 (-22%)

		2020	BAU	Efficiency First	Feed No Food	Rural Renaissance
Bovine cattle	2020	100				
	BAU		82	76	74	76
	TRAMe		83	77	74	77
	TYFA 2035		78	71	69	72
Pork	2020	100				
	BAU		84	77	83	83
	TRAMe		75	68	74	74
	TYFA 2035		67	60	65	66
Poultry	2020	100				
	BAU		126	117	133	129
	TRAMe		86	77	93	89
	TYFA 2035		58	49	65	61
Meat	2020	**100**				
	BAU		**87**	**81**	**81**	**83**
	TRAMe		**83**	**76**	**76**	**78**
	TYFA 2035		**75**	**68**	**69**	**70**

Nitrogen surplus

Efficiency First

- Efficiency gains are insufficient to offset the effect of livestock concentration: nitrogen (N) surplus increases in the West.

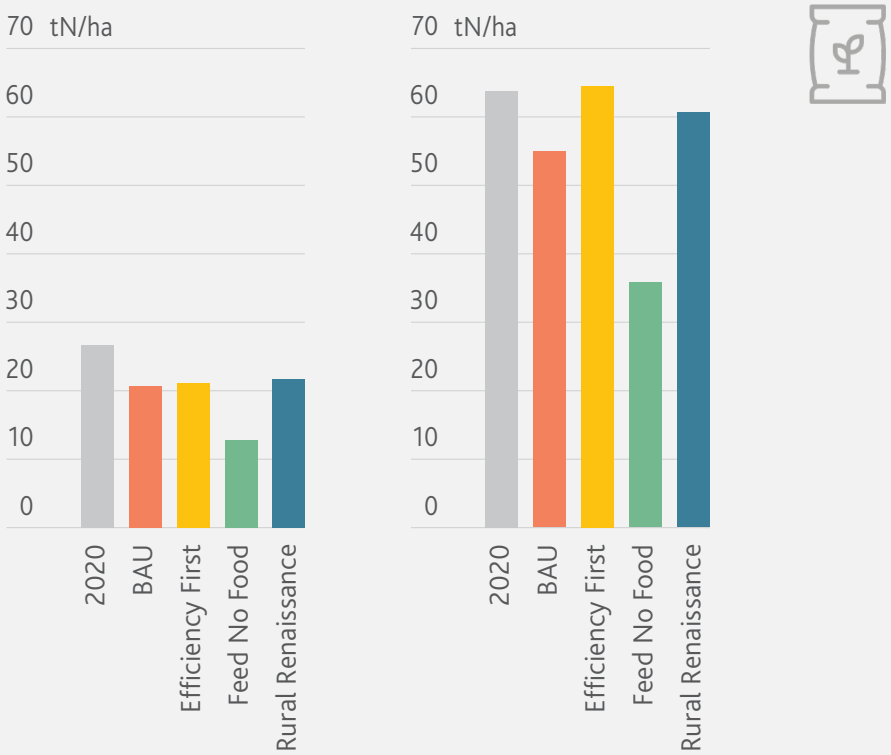
Feed No Food

- Geographic de-concentration and overall reduction in livestock lead to a decrease in nitrogen surplus, particularly pronounced in the West.

Rural Renaissance

- Nitrogen surplus remains high.

Nitrogen surplus



Land used for animal feed

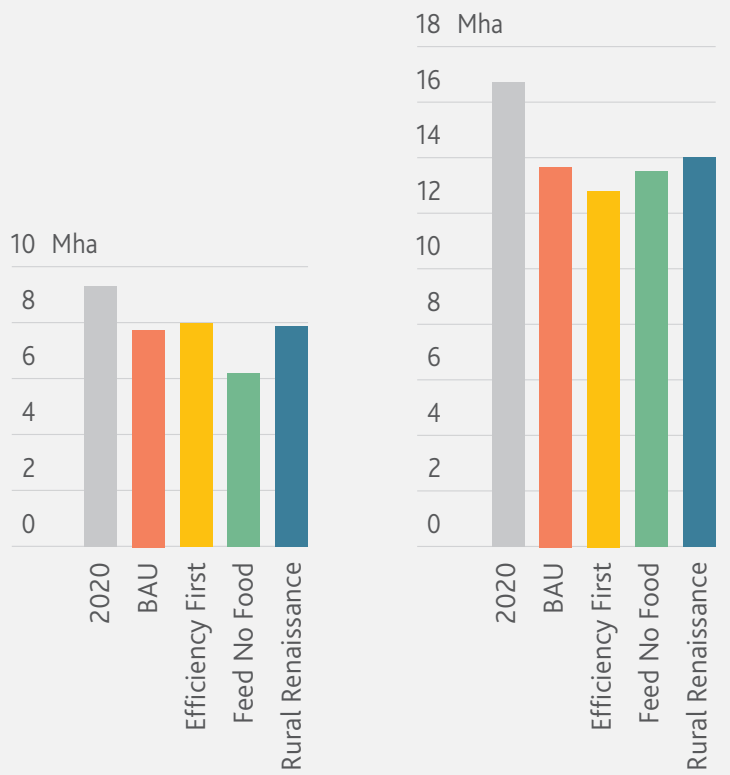
Common points

- In all scenarios, areas dedicated to animal feed decrease, either due to reductions in production or improvements in the feed conversion ratio, or a combination of both.

Differences between scenarios

- Efficiency First & Rural Renaissance:
  The land freed up could be used for additional crop production or afforestation.
- Feed No Food:
  The land freed up would allow for a reduction in the use of inputs, in line with the logic of extensification of crop production.

Land dedicated to animal feed



Arable land **Utilized agricultural area**

Grassland areas

Feed No Food

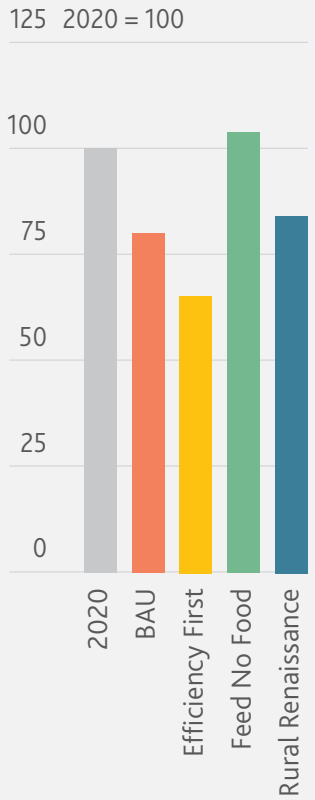
- Increase in permanent grassland areas, despite the decline in bovine cattle numbers, thanks to the increase in the proportion of grass in animal feed.
- +10% permanent grassland in the Field Crops Area (FCA) compared 2020 and maintenance of grassland in the other two regions.

Efficiency First

- Significant reduction in permanent grassland, as a direct consequence of the reduction in the proportion of grass in cattle feed.

In Feed No Food, temporary grassland areas are also maintained for reasons of preserving agro-biodiversity in crop rotations: 85% of these areas are used for animal feed, 15% are used for anaerobic digestion or for export production (e.g. alfalfa concentrates).

Permanent grassland areas



6. Demography of farms, agricultural workers, and the industrial sector

Choice of indicators

Impact on employment

Impacts on livestock farms

Changes in farms by sector

Changes in farms (all sectors)

Impacts on agri-food industry

Choice of indicators

Three indicators were selected to analyse the socio-economic impact of the livestock sector in France to shed light on the employment, the structure of farms and of agri-food industries.

- Employment (agricultural and agri-food): Approximately 2.5 million full-time equivalents are directly or indirectly linked to livestock farming (RMT Filarmonie, 2025). Livestock farmers account for 40% of employees in the agricultural sector (RMT Filarmonie, 2025), while employment in the meat industry accounts for around 19% of employment in the agri-food industry (ESANE, 2023).
- Number of farms: 145,000 farms are dedicated to livestock farming, representing 37% of all farms in France. 63% of these farms are bovine or mixed farms, and 13% are monogastric farms (pigs and poultry) (Agreste, 2020).
- Technical and economic characteristics of farms and agri-food industries: LU, UAA, average stocking density (LU/ha of grassland) per farm, average depreciation per agri-food industry and industrial stranded assets.

Impact on employment

BAU and Efficiency First

Sharp decline in agricultural and agri-food employment (down 27% and 29% respectively).

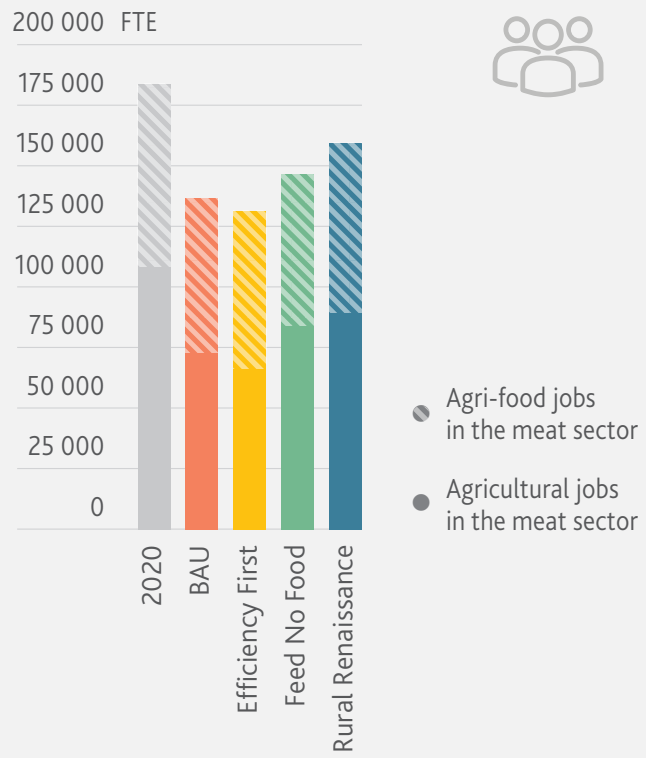
- In the **BAU scenario**, this decline in employment is the result of lower production volumes and a slight increase in productivity at various stages of the supply chain.
- In **Efficiency First**, the relative increase in volumes compared to the BAU scenario is more than offset by the increase in productivity.

Feed No Food and Rural Renaissance

The decline in employment is less pronounced (-20% and -14% respectively). This can be explained by:

- Smaller farm and agri-food processing units, generating fewer economies of scale and with higher labour intensity;
- Higher labour intensity also due to on-farm processing, direct sales, or local production of charcuterie.

Agricultural and agri-food jobs

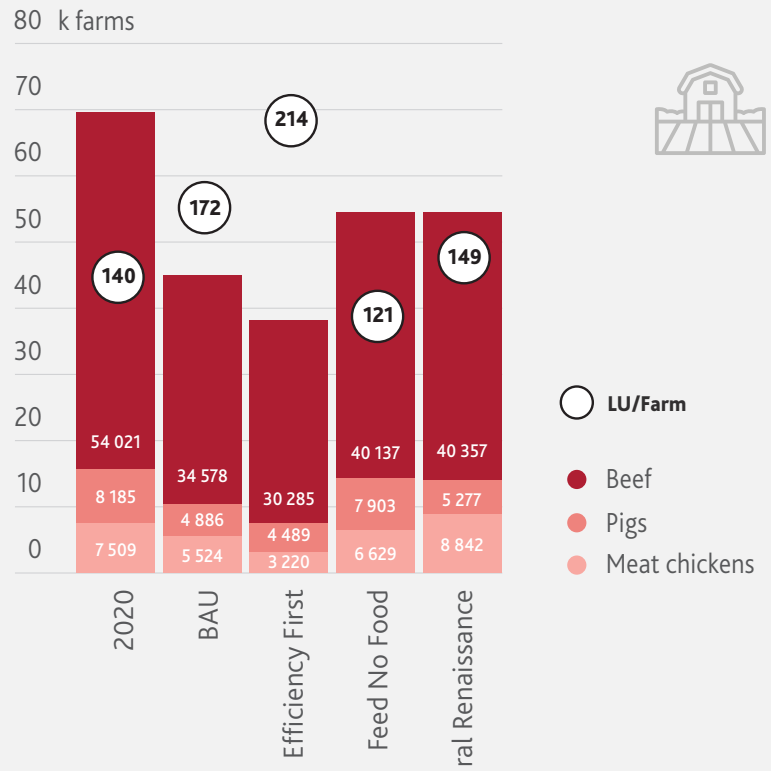


Impacts on livestock farms

- No scenario can reverse the downward trend in the number of livestock farms, particularly those focused on high production levels.
- **Efficiency First** accelerates the concentration of livestock farms and significantly reduces the number of farms to enable gains in competitiveness.
- **Feed No Food** leads to a reduction in the size of livestock farms in terms of number of animals and requires more labour due to de-specialization of farming activities.
- **Rural Renaissance** results in a dualization of livestock farms: large, specialized structures focused on concentration on the one hand, and smaller farms focused on producing higher value added products or direct sales.
- On average, **Rural Renaissance** slows down the size increase of livestock farms while allowing the maintenance of a significant number of farms and jobs.

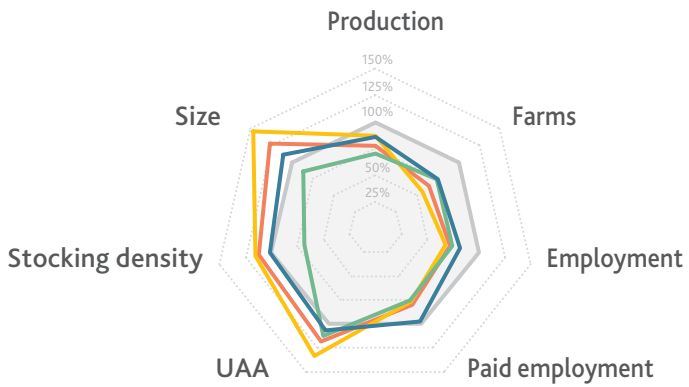
In the poultry sector, only farms specializing in meat chickens production are considered here.

Number and average size of farms

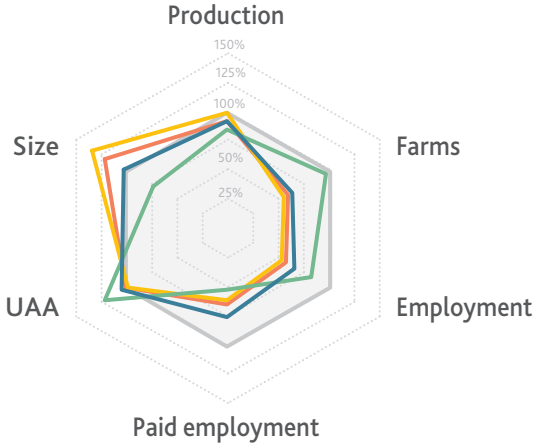


Changes in farms by sector

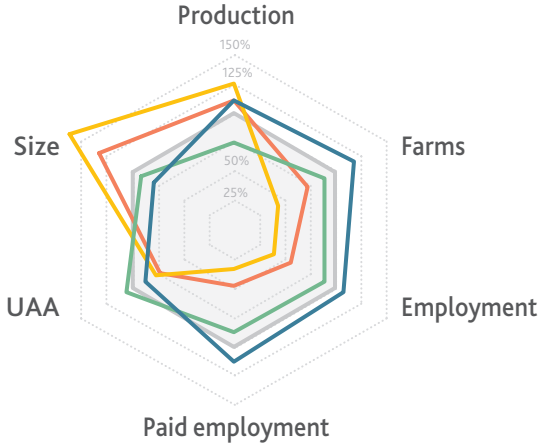
Beef

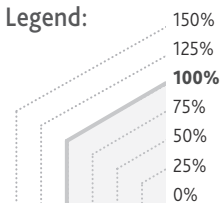


Pigs



Meat chicken





- 2020
- BAU
- Efficiency First
- Feed No Food
- Rural Renaissance

Production Total production (Tons carcass weight equivalent)

Farms Number of farms

Employment Total jobs (FTE)

Paid employment Total paid employment (FTE)

Size Average herd/flock size (LU per farm; number of poultry places per farm)

UAA Average Utilized Agricultural Area (ha/farm)

Stocking density Average stocking density (LU/ha of grassland)

Changes in farms (all sectors)

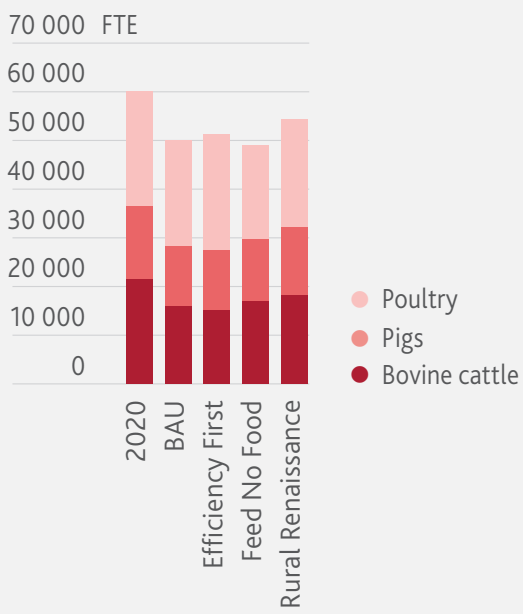
Legend:

Production	Total production (Tons carcass weight equivalent)
Farms	Number of farms
Employment	Total jobs (FTE)
Paid employment	Total paid employment (FTE)
UAA	Average Utilized Agricultural Area (ha/farm)
Taille	Average herd/flock size (LU per farm; number of poultry places per farm)

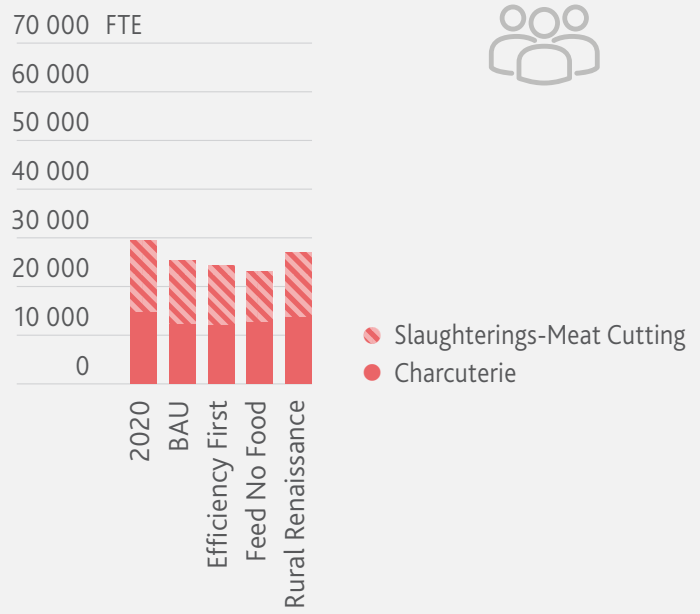
Impacts on agri-food industry

- Decline in industrial employment compared to current levels in all scenarios.
- In **Efficiency First** and **Rural Renaissance**, the level of employment is slightly higher than in the BAU scenario.
- In **Feed No Food**, agri-food employment is slightly lower than the BAU scenario: the reduction in production is not fully offset by a larger share of production processed outside western France and in smaller, more labour-intensive units.
- **Rural Renaissance** does not maintain the current level of agri-food employment despite a more diversified product mix and an increase in the share of production processed by small food processing units outside western France.

Labour requirements



Slaughterings-Meat cutting



Pig sector

Impacts on agri-food industry

Efficiency First

- Due to the growing share of production handled by large agri-food processing units, average depreciation increases by more than a third.

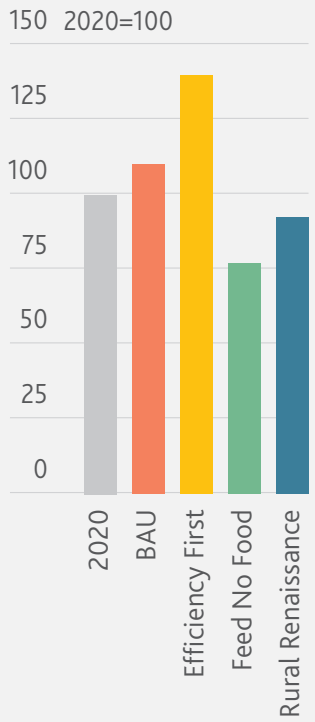
Feed No Food

- Greater risk of stranded industrial assets due to the decline in production.

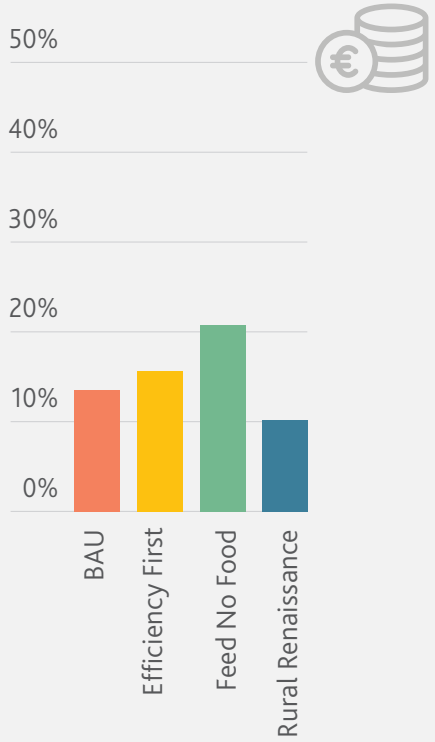
Rural Renaissance

- Fewer stranded assets than in other scenarios due to greater preservation of small processing units.

Depreciation and stranded assets



Average depreciation of processing units involve in slaughter and meat-cutting activites



Stranded assets / tangible fixed assets that still have to be depreciated

7. Key lessons for each scenario

BAU

Efficiency First

Feed No Food

Rural Renaissance

Summary of key findings

BAU

Scenario of declining production and continued specialization and geographical concentration of livestock farming.

- **Emissions**
  Slight reduction due to technical progress, but partly offset by imports if demand evolves towards current trends.
- **Agricultural land**
  Decrease in land used for animal feed, including permanent grassland, thanks to lower production volumes and improved feed conversion ratios.
- **Nitrogen balance (N)**
  Slight improvement, but the surplus remains significant in western France due to the concentration of livestock farming.
- **Dependence on external inputs**
  Slight decrease in oilseed meal requirements due to lower production and technical improvements.
- **Livestock farming conditions**
  Increase in farm size and maintenance of livestock densities.
- **Supply rate**
  Deterioration compared to 2020 if demand evolves towards current trends.
- **Farms and agricultural employment**
  Decrease of around one third in the number of farms and agricultural jobs, with erosion of small and medium-sized structures.
- **Agri-food employment**
  Employment reduced by around 15% in the industrial sector.

Efficiency First

Scenario that combines maintaining production and reducing emissions at the expense of other environmental indicators.

- **Emissions**
  Greater reduction in emissions than in the BAU scenario.
- **Agricultural land**
  Moderate reduction in arable land requirements.
  Significant reduction in permanent grassland.
- **Nitrogen (N) balance**
  Aggravated nitrogen surplus in western France.
- **Dependence on external inputs**
  Slight decrease in feed meal requirements thanks to technical improvements.
- **Supply rate**
  Higher than other scenarios with equal demand.
- **Farm structures**
  Significant increase in farm size and maintenance or even increase in livestock densities.
- **Farms and agricultural employment**

Lowest number of farms and agricultural jobs of all the scenarios studied, due to the high concentration of production and gains in labour productivity.

- **Agri-food employment**
  Employment similar to the BAU scenario (but lower than in 2020), with significantly higher average depreciation per processing unit.

Feed No Food

Scenario that meets multiple criteria in terms of agri-environmental protection, but leads to a significant decline in production.

- **Emissions**
  Total emissions slightly lower than Efficiency First in the bovine cattle sector, but higher in pigs and poultry sectors.
- **Agricultural land**
  Maintenance of permanent grassland and increased farm feed self-sufficiency: more grass in cattle feed, more mixed farming. Significant reduction in the amount of arable land needed for animal feed.
- **Nitrogen (N) balance**
  Reduced nitrogen surplus, particularly in western France.
- **Dependence on external inputs**
  Major reduction in arable land and oilseed meal requirements.
  Increased feed self-sufficiency in the bovine sector.
  Potential reduction in pesticide and fertilizer use
  thanks to the reduction in the amount of arable land used.
- **Farm structures**
  Decrease in farm size.
  Maintenance of livestock densities.
  Extensification of cattle production.
- **Supply rate**
  Improvement in self-sufficiency rate only if demand evolves in line with the scenario.
- **Farms and agricultural employment**

Higher number than in the BAU scenario, thanks to smaller and more diversified structures.

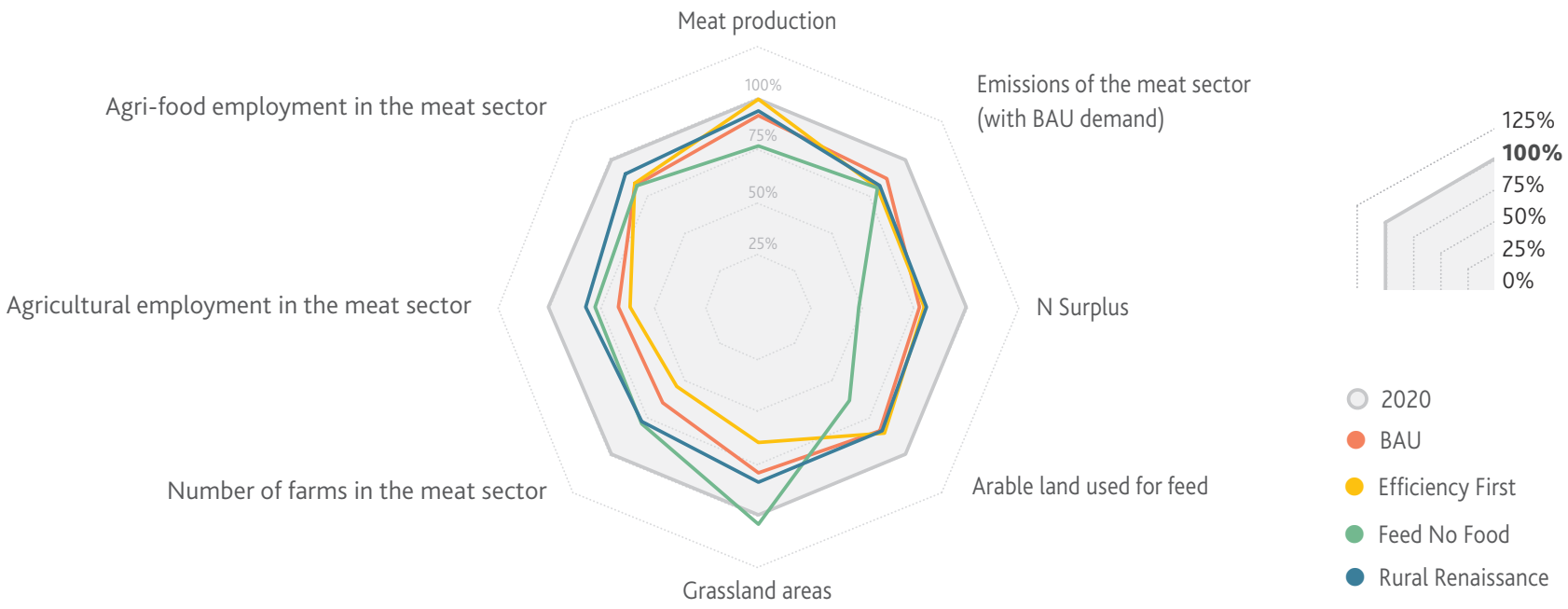
- **Agri-food employment**
  Agri-food employment lower than in the BAU scenario and higher risk of stranded assets.

Rural Renaissance

Scenario of "dualization" between "efficient" but specialized and geographically concentrated systems, and short supply chains or “alternative” systems.

- **Emissions**
  Total emissions close to the BAU scenario.
- **Agricultural land**
  Requirements for arable land and grassland similar to the BAU scenario.
- **Nitrogen balance (N)**
  Nitrogen surplus comparable to that of the BAU scenario.
- **Dependence on external inputs**
  Slight decrease in oilseed meal requirements thanks to technical improvements.
- **Livestock farming conditions**
  Decrease in farm size and stocking densities for part of production.
- **Supply rate**
  Similar to the BAU scenario.
- **Farms and agricultural employment**
  Higher than the BAU scenario, similar to Feed No Food.
- **Agri-food employment**
  Lower reduction in agri-food employment compared to other scenarios, with levels higher than the BAU scenario (but still lower than current levels).

Summary of key findings



8. Key findings for each scenario

(strengths, weaknesses, opportunities, threats)

BAU

Efficiency First

Feed No Food

Rural Renaissance

Discussion

BAU

STRENGTHS

- Possibility of achieving marginal environmental gains thanks to technical progress by 2035.
- No need to engage in complex political or strategic debate to redirect the livestock sectors.

WEAKNESSES

- Continuation of current trends in environmental degradation and economic decline of the livestock sectors, particularly pronounced in the bovine sector.
- Erosion in the number of agricultural workers, livestock farms, and industrial processing units.

OPPORTUNITIES AND LEVERS FOR POLITICAL ACTION

- Opportunity for some French operators to strengthen their dominant position as weaker domestic competitors struggle to withstand foreign competition.
- No redirection of current public policies

THREATS

- Continued loss of food sovereignty if demand also follows its BAU trajectory, particularly in the poultry sector.
- Failure to meet environmental and climate objectives for French livestock sectors, notably regarding greenhouse gas emission reductions and carbon storage in grasslands (French Low-Carbon Strategy 3).

Efficiency First

STRENGTHS

- Higher GHG emission reductions
- Higher supply rate.
- Improved ability to face international competition due to enhanced price competitiveness.

WEAKNESSES

- Significant impacts on other environmental issues: biodiversity and water quality.
- Major reduction in employment.
- Low resilience to market shocks: increased inter-sector competition for high-quality feed to maintain technical performance.

OPPORTUNITIES AND LEVERS FOR POLICY ACTION

- Scenario offering the greatest contribution of the meat sectors to France's exports.
- Examples of policy levers that could be activated:
  - French Livestock sovereignty plan (investment plan for the livestock sector)
  - Carbon tax penalizing farms with high emissions per tonne of carcass equivalent

THREATS

- Current economic context (inflation, international competition) poses a barrier to investing in efficiency improvements.
- Uncertainty about the ability to widely implement more efficient technical systems in the short term.
- Limits of the technological option: little additional scope to reduce emissions after 2035.

Feed No Food

STRENGTHS

- Overall good environmental performances (emissions, biodiversity, feed self sufficiency at farm levels, soil and water pollution, etc.).
- Increase in on-farm agricultural employment compared with the BAU scenario.

WEAKNESSES

- Significant reduction in production, which may have concerning economic consequences for certain actors in the meat sectors.
- Job losses at the industrial level.
- Deterioration of French operators' price competitiveness compared with foreign competitors.

OPPORTUNITIES AND LEVERS FOR POLICY ACTION

- Improvement in strategic autonomy (reduced dependence on third countries for soybean imports) for the French meat sectors.
- Examples of potential policy levers:
  - Support for livestock farm establishment in arable cropping areas.
  - Compensation and support for farmers to exit the sector (training, career change assistance, exit grants, funds for affected creditors).
  - Support to shift the demand through the National Strategy for Food Nutrition and Climate (SNANC) (Ministère de l'Agriculture et de la Souveraneité Alimentaire, 2025).

THREATS

- Difficulty in planning an orderly exit for some economic actors from the market.
- Risk of reduced supply rates if there is no change in demand.

Rural Renaissance

STRENGTHS

- Increase in rural employment compared with the BAU scenario.
- Strengthening of the bargaining power of the agricultural segment vis-à-vis other segments of the value chain.

WEAKNESSES

- Supply-driven scenario requiring strong support on the demand side (local, national, and diversified products), while the current context is challenging: high dependence on imports for certain sectors, and short or niche supply chains currently struggling.
- Modest environmental performance.

OPPORTUNITIES AND LEVERS FOR POLICY ACTION

- Increase in rural employment compared with the BAU scenario.
- Strengthening of the bargaining power of the agricultural segment vis-à-vis other segments of the value chain.
  - Support for investments in agri-food firms operating within short and high-quality supply chains.
  - Regional structuring: creation of hubs to pool costs and logistics.

THREATS

- Risk of increased dualization of diets between social groups due to greater segmentation of product quality levels.
- Potential difficulty in recruiting the necessary workforce given the tight labour market in the livestock sectors.

Discussion

- The four scenarios presented in this *Study* illustrate some of the major opposing visions for the desirable future of the French meat industry.
- The results show that no single scenario provides a comprehensive response to all the economic, social and environmental challenges.
- All scenarios involve compromises (including the BAU scenario, even if its adoption does not need to be publicly acknowledged and supported) and trade-offs between these different challenges, which may also vary depending on the sector.
- Explaining these trade-offs is essential in the current public debate, as it clarifies the implicit hierarchy between agro-environmental, economic and societal issues and identifies the stakeholders who would be affected.
- In France, in recent years, most of the stakeholders affected by developments of the French meat industry have publicly expressed their rejection of the BAU scenario, as it involves trade-offs that are considered unacceptable, whether in terms of declining production, loss of sovereignty, environmental degradation or unbalanced diets.
- Thus, departing from this scenario (whatever the recommended alternative) generates consensus. It however raises difficult questions about the capacity and modalities of such a departure.
- Indeed, all scenarios, with the exception of the BAU scenario would require profound changes to either the political framework (Feed No Food and Rural Renaissance) or the political instruments supporting livestock farming (Efficiency First, Feed No Food and Rural Renaissance), or an economic context favourable to investment (Efficiency First and Rural Renaissance).
- Yet, the French meat sector is increasingly suffering from competition from foreign players – primarily from the EU level – on both the domestic and the export markets.
- Therefore, the evolution of the French meat sector towards a model that reconciles environmental and socio-economic performance cannot be considered solely at the national level. It must be part of the future "livestock strategy" announced by the European Commission for the second quarter of 2026.

Appendix.
Qualitative analysis of animal welfare across the scenarios

How can we define animal welfare (AW)?

- In practice, we often talk about animal welfare (AW) without specifying what we mean by it.
- Certain standards are presented as relating to AW when in fact they concern other issues, such as animal identification.
- Depending on how the concept of AW is understood, the consequences in terms of changes in practice or production systems vary greatly in scope and nature.
- In our analysis, we have used the definition provided by the French Agency for Health and the Environment, ANSES: *Animal welfare is the positive mental and physical state associated with the satisfaction of an animal's physiological and behavioural needs and expectations. This state varies according to the animal's perception of the situation (ANSES, 2018).*

Impact of taking AW into account on production costs

- Following such a definition, AW does not imply only moderate adjustments to practices and costs: it requires structural changes, often at significant cost, as for example:
- A sharp reduction in stocking density and a limit on the number of animals per unit of labour in order to preserve the farmer-animal bond.
- Increased access to the outdoors.
- This would imply a significant increase in investment per animal.
- … and variable operating costs depending on the species
  - For monogastric animals: increase.
  - Cattle: possible decrease thanks to more extensive systems.

The AW in transport and slaughter

During transport and slaughter, the AW aims to reduce stress and suffering for animals.

This involves additional investment and operational adjustments.

Transport

- Distance travelled:
  reduced to limit stress on the animals.
- Summer schedules:
  adapted to avoid periods of extreme heat.
- Transport conditions:
  trucks equipped for the comfort and safety of the animals.

Slaughter

- Care prior to slaughter:
  increased care during unloading to stunning, reduced slaughter rate.
- Animal welfare–oriented building upgrades:
  increased investment per animal.

Different challenges depending on the species

The AW represents a variable level of constraint depending on the species

Bovine cattle

Restrictive for fattening and dairy systems (including calves).

Pigs

Very restrictive → radical change for the entire sector.

Poultry

Very restrictive for standard conventional production, the dominant segment of the sector.

A qualitative assessment of the consequences of the four scenarios on animal welfare issues

	BAU	Efficiency First	Feed No Food	Rural Renaissance
Farmer-Animal Relationship (number of animals per AWU)	Increase in the number of animals per AWU **= / -**	Significant increase in the number of animals per AWU **-**	Reduction in the number of animals per AWU **+**	Dualization of the evolution in the number of animals per AWU **- / +**
Outdoor access / Livestock density	Continuation of current practices **=**	Increase in the proportion of indoor systems **-**	Slight increase in the share of systems with lower stocking densities for pigs and poultry. More extensive bovine cattle farming. **+**	Increase in the share of systems with lower stocking densities in pig and poultry farming **+**
Transport time (distance to slaughter)	Partial reduction in transport time as a result of geographical concentration **= / +**	Reduction in transport time as a result of geographical concentration **+**	Increase in transport time as a result of relocation, partly offset by a denser network of slaughterhouses **-**	Reduction in transport time and a denser network of slaughterhouses **+**

References

- ANSES (2018). L'Anses propose une définition du bien-être animal et définit le socle de ses travaux de recherche et d'expertises.
- Aubert, P.-M., Poux, X. (2024). Des filières viandes françaises sous tension : entre pressions compétitives et accès à la biomasse. Décryptage N°07/24, Iddri, Paris, France.
- CITEPA (2025). Données par secteur éd. 2025.
- ESANE (2023). Caractéristiques comptables, financières et d'emploi des entreprises - Principales caractéristiques au niveau sous-classe.
- GIS Avenir Elevages (2022). Utilisation des terres agricoles, est-ce que les animaux d'élevage concurrencent l'alimentation humaine ? 6 pages.
- RMT Filarmoni (2025). Les emplois liés aux filières agro-alimentaires françaises.
- INSEE (2020). Tableaux de l'économie française
- Leip, A., Wollgast, J., Kugelberg, S., Costa Leite, J., Maas, R. J., Mason, K. E., & Sutton, M. A. (2023). Appetite for change: food system options for nitrogen, environment & health. 2nd European Nitrogen Assessment Special Report on Nitrogen & Food.
- Poux, X., Aubert, P.-M. (2018). Une Europe agroécologique en 2050 : une agriculture multifonctionnelle pour une alimentation saine. Enseignements d'une modélisation du système alimentaire européen, Iddri-AScA, Study N°09/18, Paris, France, 78 p.
- Saujot, M., Nasr, C., Brocard, C., Aubert, P.-M. & Rogissard, L. (2025). TRAMe 2035 – Transition des régimes alimentaires des ménages en France. Paris, Iddri-I4CE.
- Sutton, M. A., Howard, C. M., Erisman, J. W., Billen, G., Bleeker, A., Grennfelt, P., ... & Grizzetti, B. (Eds.). (2011). The European nitrogen assessment: sources, effects and policy perspectives. Cambridge university press.

Citation :
The future of the meat sector in France: four scenarios for 2035.
Schiavo, M., Doublet, S., Gardin, B., Poux X., Catallo, A., Aubert, P-M, IDDRI, *Study* No. 06/25.

Contacts :
michele.schiavo@iddri.org
pierremarie.aubert@iddri.org
aurelie.catallo@iddri.org

Institute for Sustainable Development and International Relations
41, rue du Four – 75006 Paris – France

This work was supported by Ademe, the Caisse des Dépôts Research Institute,
the Daniel and Nina Carasso Foundation, the European Climate Foundation (ECF) and Porticus.

Pathways FOR SUSTAINABLE FOOD

It also received support from the European Commission through the Horizon 2020 PATHWAYS research and innovation project
Horizon 2020 PATHWAYS research and innovation project (https://www. pathways-project.com) No. 101000395,
as well as state aid managed by the ANR under the France 2030 Investment Plan, reference ANR-16-IDEX-001.

ASCA BASIC IDDRI I4CE Solagro