



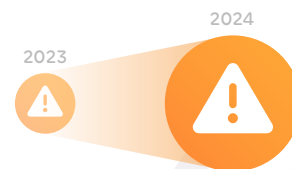
Agrifood



Far too slow

Agrifood refers to all stages of the agricultural supply chain, from food production to consumption to disposal, while also considering aspects of land use and the production of agricultural inputs.

4.5 Agrifood



Past progress: Progress towards climate neutrality was **far too slow** in the EU’s agrifood sector in the assessed period. The outlook for overall GHG emissions reduction slightly improved since last year’s assessment, but reductions were still not occurring fast enough; in particular, reductions in downstream sectoral emissions need acceleration. Cattle meat consumption levels remained too high. The EU will likely fall short of its 2030 targets for nitrogen fertiliser use, organic farming expansion, and food waste reduction. The manure management emissions intensity of cattle and total livestock numbers were both headed in the **wrong direction**.

Policy context: Since 2020, the EU’s guiding framework for mitigating emissions from the agrifood system is the Farm to Fork Strategy (F2F). The F2F Strategy outlines a set of largely voluntary measures that leverage the link between human health and environmental sustainability. Revised in 2021, the Common Agricultural Policy (CAP) is the EU’s principal financing mechanism for the agricultural sector. The revision claims to channel 40% of its budget towards providing ‘climate-relevant’ support (EC, 2021n), but a serious reduction in emissions is unlikely (ESABCC, 2024); especially given that, following union-wide protests from farmers, the EC proposed loosening key environmental regulations under the CAP (Ca-sert, 2024) and removed the mention of a 25% reduction target for non-CO₂ emissions from the agrifood sector from its 2040 target update (Arboleas, 2024).









Areas of action: The EU’s vision for the agrifood sector, as laid out in the F2F Strategy, has not been supported by sufficient, compulsory policy: many of the proposed policy actions—notably, the legislative framework for sustainable food systems—have not materialised (EPRS, 2024). The CAP’s funding structure could encourage a sustainable, increasingly plant-based food system instead of incentivising emissions-intensive, animal-based agriculture. As the recent protests from European farmers highlight, this shift will require careful planning and integration within a long-term, just transition strategy (Schröder & Benton, 2024). Critically, supply-side measures should be complemented by policies on demand. The EU could also clarify inconsistencies in its signals regarding food waste reduction targets.

Table 12: Progress in agrifood towards the objective and enablers

OBJECTIVE	ENABLERS		
Minimising agrifood emissions and shifting diets 	Reducing fertiliser use and cropland-related emissions 	Making livestock production more sustainable 	Reducing food waste and end-of-supply chain emissions

Note: Large circles show the progress classification of this year and small circles the one from last year’s progress assessment. Arrows indicate positive or negative changes in classification. See Table 35 for further information.
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Table 13: Details on indicators' past progress and required change

2023 ▼	2024 >	Historical data			Required change	
		Time period	Relative change p.a.	Absolute change p.a.	Benchmark	Absolute change p.a.
OBJECTIVE: Minimising agrifood emissions and shifting diets						
	Agricultural emissions [MtCO ₂ e]	2017–2022 (EEA, 2024b)	- 0.8% per year	-3.0 MtCO ₂ e per year	254 MtCO ₂ e in 2050 (EC, 2018)	-4.2 MtCO ₂ e per year (2023–2050) → 1.4 times faster
	Cattle meat consumption [kg/capita]	2017–2022 (DG AGRI, 2023)	-0.7% per year	-0.1 kg/capita per year	34% reduction by 2050 relative to 2013 (EC, 2018)	-0.1 kg/capita per year (2023–2050) → 1.6 times faster
ENABLER 1: Reducing fertiliser use and cropland-related emissions						
	Nitrogen fertiliser use [kg N/ha]	2016–2021 (EU CRF, 2023)	-1.0% per year	-0.8 kg N/ha per year	20% reduction by 2030 vs. 2018 (EC, 2020b)	-1.5 kg N/ha per year (2022–2030) → 1.8 times faster
	Share of organic farming in total agricultural area [%]	2017–2022 (FiBL, 2024)	6.6% per year	0.6%-points per year	25% in 2030 (EC, 2020b)	1.8%-points per year (2021–2030) → 3.2 times faster
ENABLER 2: Making livestock production more sustainable						
	Manure management emissions intensity of cattle [tCO ₂ e/cattle]	2016–2021 (EEA, 2023b)	0.3% per year	0.001 tCO ₂ e/cattle per year	n/a	n/a
	Livestock numbers [million head]	2016–2021 (EU CRF, 2023)	0.2% per year	3.5 million head per year	n/a	n/a
ENABLER 3: Reducing food waste and end-of-supply chain emissions						
	Volume of food waste [kg/capita]	2020–2021 (Eurostat, 2023b)	n/a	n/a	50% reduction by 2030 (EC, 2020b)	n/a
	Emissions from food processing, transport, and packaging [MtCO ₂ e]	2016–2021 (FAO, 2023)	-1.6% per year	-3.8 MtCO ₂ e per year	n/a	n/a

Note: Icons indicate progress classification of this year's progress assessment and coloured lines the change in classification; See Table 35 for further information. n/a indicates that data are not available.

Source: ©ECNO.

Objective: Minimising agrifood emissions and shifting diets

Past progress: Over the period assessed, progress towards minimising agrifood emissions and shifting diets was **too slow** to reach climate neutrality by 2050. Reductions in agrifood emissions, which include on-farm emissions, but exclude energy use and LULUCF emissions, were **too slow** to reach the EU's 2050 emission target level of 245 MtCO₂e (EC, 2018). Compared to last year's progress assessment, the rate of emissions reduction increased but still needs to be further accelerated. The decrease in emissions may be attributed to decreased fertiliser use (EEA, 2023b) caused by the energy crisis (FE, 2022). The status of shifting towards less emissions-intensive diets remained **too slow** and was incompatible with the EU's target of decreasing cattle meat consumption by 34% in 2050 compared to 2013 consumption levels (EC, 2018).

Indicators:

- Agricultural emissions
- Cattle meat consumption

Policy context: The 2020 F2F Strategy and the 2021 CAP revision are the EU's principal tools for reducing emissions and advancing sustainability in the agrifood sector (ESABCC, 2024). The F2F Strategy established key targets to reduce agricultural emissions and introduced 27 relevant, but largely discretionary, measures to create a more sustainable food system. Six of these measures directly promote a shift to more sustainable, healthier diets. The CAP—which is the EU's single largest expenditure (Clark, 2024)—increasingly considers the climate footprint of the agricultural sector, but has been unable to mitigate agricultural emissions: between 2014 and 2020, the CAP's allocation of EUR 100 billion towards climate change mitigation and adaptation did not reduce emissions (ECA, 2021). The revised CAP requires Member States (MS) to draft CAP Strategic Plans (CSPs), which largely shifts responsibility for climate action to MS (ESABCC, 2024). In 2022, the EU proposed amending the Industrial Emissions Directive (IED) (EC, 2022k) to more stringently regulate emissions from large pig and poultry farms (Haahr, 2024).

Areas of action: The EU could, as recognised by the majority of EU experts in the IEEP's 2023 European Green Deal Barometer (IEEP, 2023), use the CAP to financially encourage low-emission agriculture (Björkbom, 2023). The CAP's current subsidy structure does not financially incentivise a phase-out of emissions-intensive, industrialised agriculture (EEA, 2022c), but rather reinforces harmful, consolidated farming practices (ECA, 2021). Developing and adopting the F2F Strategy's proposals for setting minimum mandatory criteria for sustainable food procurement (ESABCC, 2024), creating a sustainability labelling framework (Katsarova, 2024a), and harmonising mandatory front-of-pack nutrition labelling (Katsarova, 2024b) would support healthier, plant-based diets. In the F2F Strategy, the EU acknowledges the potential for demand-side tax incentives to create a more sustainable food system but does not introduce any explicit price-based policies in the strategy's action plan. The EU could consider financial policies, such as emission pricing, to complement improved labelling, which is unlikely to facilitate the necessary shift in diets on its own (ESABCC, 2024). The IED could be expanded to include cattle farms; a critical omission as cattle are the most GHG-emitting livestock species (Wisser et al., 2023).

Enabler 1: Reducing fertiliser use and cropland-related emissions

Past progress: Progress towards reducing fertiliser use and cropland-related emissions—as measured by the level of nitrogen fertiliser consumption and the share of organic farming area in the EU—was **too slow** to meet the EU’s 2050 target for climate neutrality. Although the use of nitrogen fertiliser decreased since 2017 (EU CRF, 2023) and is expected to decrease more rapidly over the next decade (FE, 2022), the reduction rate was **too slow** to meet the reduction target of 20% by 2030 relative to 2018. Nitrogen fertiliser consumption must decrease 1.8 times faster every year, or by 1.5kg N/ha per year, to reach the EU’s 2030 target. The EU seeks to substantially increase the application of organic farming: by 2030, 25% of the EU’s total agricultural area should be farmed organically. However, the rate of progress towards this 2030 target was **far too slow**: at the current rate, organic farming will only account for roughly 15% of the EU’s entire agricultural area in 2030. The rate needs to increase by 3.2 times to remain compatible with the 2050 climate neutrality target.

Indicators:

- Nitrogen fertiliser use
- Share of organic farming in total agricultural area

Policy context: The EU’s 2020 F2F Strategy is the first step towards creating a more sustainable and resilient food system (ESABCC, 2024) by setting explicit targets for reducing nitrogen fertiliser use and expanding organic farming areas in the EU. The CAP currently financially supports nearly two-thirds of the total organic farming area in the EU (EC, 2023z). Historically, the CAP has also provided minimal financial support for the methods to reduce nitrogen fertiliser dependency, such as the planting of forage legumes on grassland and the application of nitrification and urease inhibitors in soils (ECA, 2021). In addition, some MS national plans include measures that may reduce domestic fertiliser use (ESABCC, 2024). Generally, efforts to reduce fertiliser use are determined by MS in their CSPs. In 2023, the EC reviewed submitted CSPs and found limited support for fertiliser use reduction: only 15% of the EU’s agricultural land is cultivated with moderated nitrogen fertiliser application (EC, 2023ao).

Areas of action: Although the F2F Strategy sets targets for reducing nitrogen fertiliser use and scaling organic farming, the strategy does not introduce compulsory, tangible policy measures to support the targets. Progress could furthermore be made by increasing CAP funding for organic farming, which simultaneously sequesters more CO₂ and releases fewer N₂O emissions than non-organic farming (Brook, 2022). The CAP could also expand its financial support for strategies to reduce fertiliser employment for non-organic farms. Additionally, bolstering support for digitalised, GPS-enabled precision farming could help mitigate emissions (Balafoutis et al., 2017) and improve the profitability of crop and livestock production (Boehlje, 2021).

Enabler 2: Making livestock production more sustainable

Past progress: Progress toward making livestock production more sustainable was headed in the **wrong direction** in the assessed period. Both indicators for this enabler—manure management emissions intensity of cattle and overall livestock populations—should decrease to minimise the sectoral GHG emissions. Instead, the manure management emissions intensity of cattle, which are the largest source of manure management emissions, has remained nearly constant at 0.38 tCO_{2e} per cattle for the past 20 years. Livestock numbers, driven by growth in poultry farming across the EU (ECA, 2021), steadily increased by 0.2% per year between 2016 and 2021.

Indicators:

- Manure management emissions intensity of cattle
- Livestock numbers

Policy context: Even though livestock production accounts for up to 86% of the EU's agricultural GHG emissions (Peyruad & MacLeod, 2020), the EU has not set explicit targets for or adopted legislation to manage livestock systems and the associated emissions. Although not officially acknowledged by the EU, reaching climate neutrality will likely require significant reductions in the emissions rates per livestock unit, as well as reductions in overall livestock numbers (Buckwell & Nadeu, 2018). Reducing emissions per livestock head demands caution: managing emissions from enteric fermentation may lead to a shift away from open-pasture farming to energy- and emissions-intensive, consolidated, industrialised farming, which is neither conducive to animal welfare nor emissions reduction. Other technical and genetic interventions, such as chemically synthesised inhibitors, have the potential to reduce emissions per livestock head, but require significantly more research and development (IPCC, 2022a). Livestock emissions can more simply be reduced by decreasing overall livestock populations and by improving manure management.

Areas of action: To make livestock production more sustainable, the EU could increase financial support for manure management strategies and implement policies to reduce overall livestock numbers. Slurry acidification, manure cooling, impermeable covers, and manure-derived biogas production are demonstrated means for reducing manure-induced emissions, but few farms receive CAP funding to apply these measures (ECA, 2021). Reducing the total number of livestock offsets the need to reduce emissions per livestock animal. A reduction in livestock numbers would directly reduce emissions from livestock and indirectly reduce emissions from feed production (ESABCC, 2024); EU soy feed imports are responsible for substantial emissions from land uses changes in exporting countries in Latin America (Rajão et al., 2020). Decreasing the supply of livestock should be complemented by a decrease in the demand for animal-based products to ensure that livestock production is not simply displaced abroad. Plant-based foods, which, even when highly processed (Detzel et al., 2021), have significantly lower GHG emissions per kilogram of protein than animal-based foods (Searchinger et al., 2019), must become readily and affordably available. Reducing the cost and increasing public awareness of plant-based foods can augment the consumption of healthier, more sustainable diets.

Enabler 3: Reducing food waste and end-of-supply chain emissions

Past progress: Progress toward reducing food waste headed in the **wrong direction** between 2020 and 2021 (the latest available data), while progress towards reducing end-of-supply chain emissions in the EU was **far too slow** to reach climate neutrality by 2050. The EU generated nearly 131 kg of food waste per capita in 2021 (Eurostat, 2023b). End-of-supply chain emissions include the emissions from food processing, transport, and packaging. Emissions from food processing, transport, and packaging have decreased since the early 2000s; between 2016 and 2021, the reduction rate was 1.6% per year (FAO, 2023). Although headed in the right direction, reductions must be accelerated to remain aligned with the 2050 climate neutrality target.

Indicators:

- Volume of food waste
- Emissions from food processing, transport, and packaging

Policy context: Reducing food waste is a key objective of the F2F Strategy. In the strategy, the EU commits to halving per capita food waste at the retail and consumer level by 2030. In 2023, the EC proposed revising the 2018 Waste Framework Directive (WFD) (EC, 2023ab). The proposal sets a 10% reduction target for food waste from processing and manufacturing and a 30% reduction target for food waste generated by households and retail, distribution, restaurant, and food services. The F2F Strategy also committed to revising the rules on date marking—the ‘use by’ and ‘best before’ labels—on food products sold in the EU in 2023. Although the EU intended to release the revised rules at the end of 2022, the rules have not yet been adopted. Generally, downstream emissions are not considered as part of overall agricultural emissions, but end-of-supply processes require significant energy inputs. The F2F Strategy does recognise the impact of food processing, packaging, and distribution but only establishes a voluntary code of conduct on responsible food business and marketing practices to address downstream emissions (EC, 2021e).

Areas of action: Further progress could be made by raising ambition and addressing inconsistencies in benchmarking for food waste reduction. The proposed amendment to the WFD does not set a benchmark for reducing food waste during primary agricultural production. Additionally, the food waste reduction targets that are established in the proposed WFD are less ambitious than the F2F Strategy’s 50% reduction target; likely resulting in the EU falling short of the 50% reduction target and, in doing so, failing to comply with the UN SDG Target 12.3 (ESABCC, 2024). A policy gap could be filled by setting a target for minimising downstream emissions in the agrifood sector. To address downstream emissions, the EU could escalate the voluntary, aspirational status of the guidelines on responsible food business and marketing practices (EC, 2021e) and mandate emission reduction from agrifood distributors and processors. Fulfilling its commitment to develop and adopt a proposal for date marking is a straightforward mechanism for the EU to reduce food waste by up to 10% (EC, 2018).