Agriculture

Transition planning for companies operating in agriculture sector

2026



About this Guideline

This non-binding Guideline was developed by the Baltic Banking Associations to support companies and financial institutions in preparing climate transition plans. It does not create any legal, regulatory, supervisory, or contractual obligations.

The recommendations and examples are for guidance only. They should be applied proportionately, considering each organisation's circumstances, sector, business model, and ambitions. They do not prescribe specific targets, timelines, technologies, business decisions, or financing outcomes. Each organisation remains responsible for complying with applicable requirements and deciding which measures are appropriate.

Banks aim to support companies as partners in the transition to a more sustainable economy. The Guideline is intended to encourage constructive dialogue and informed decision-making, not to establish supervisory or controlling functions.

The Baltic Banking Associations accept no responsibility for decisions made based on the Guideline. It reflects publicly available information and market practices at the time of publication.

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1. Background

This annex covers specific transition planning aspects for businesses which are engaged in livestock production, dairy, and grain cultivation. Food processing resulting from these activities is further covered by the Food industry annex and may be considered together if the company operates both in agriculture segment and food processing resulting from agriculture activities.

1.1 Climate impact of the sector

Table 1. Agriculture sector's GHG emissions in the Baltic states

Estonia[1]	Latvia[2]	Lithuania[3]
~1,552 kt CO_2e **~15.1% of Estonia's total GHG emissions** Total agricultural emissions have decreased by approximately 43.9% since 1990. The main emission sources in 2024 were agricultural soils, which accounted for around 45% of sector emissions, enteric fermentation, which accounted for around 39%, and manure management, which accounted for around 14%. In recent years, emissions have remained relatively stable, and the most significant reductions compared with 1990 are largely linked to structural changes in agriculture after the transition period in the early 1990s.	**~2,069 kt CO_2e** **~21.5% of Latvia's total GHG emissions** Total agricultural emissions have decreased by approximately 58.7% since 1990. The main emission sources in 2024 were agricultural soils, which accounted for around 46% of sector emissions, enteric fermentation, which accounted for around 42%, and manure management, which accounted for around 8%. In recent years, total agricultural emissions have remained relatively stable, and their dynamics are mainly affected by changes in crop production intensity, fertiliser use and livestock structure.	**~3,699 kt CO_2e** **~20% of Lithuania's total GHG emissions** Total agricultural emissions have decreased by approximately 57.4% since 1990. The main emission sources in 2024 were enteric fermentation, which accounted for around 46% of sector emissions, agricultural soils, which accounted for around 41%, and manure management, which accounted for around 10%. However, since the early 2000s, agricultural emissions have remained relatively stable, meaning that future emission reductions will largely depend on changes in livestock, fertiliser use and soil management practices.

[1] Greenhouse gas emissions and removals inventories datasets, EEA
[2] Greenhouse gas emissions and removals inventories datasets, EEA
[3] Greenhouse gas emissions and removals inventories datasets, EEA

1.2 Sector-specific considerations

While direct emissions (particularly methane from enteric fermentation and manure management, and nitrous oxide from managed soils) remain the dominant climate challenge for the sector[4], several additional factors influence its broader emissions profile. Energy use in farming and food production is a significant mitigation focus, but other contributors such as packaging, agricultural logistics, water consumption, and food-loss prevention also play an important role across the agricultural value chain[5]. These elements drive indirect (Scope 3) emissions, while water use and soil-management practices connect directly to natural-resource preservation[6].

Given agriculture's substantial share of national emissions and its sensitivity to climate policies, market expectations, and ecological conditions, the sector is essential to the Baltic region's wider climate-transition pathway. Its decarbonisation progress will influence not only national emissions trajectories but also long-term food-system resilience[7].

Considering that, this sectoral annex covers target setting and action planning both for direct and indirect impacts the agricultural companies may have. The annex covers agricultural activities and processes mainly. Food industry is covered by another sectoral annex and focuses on activities such as sourcing, processing, packaging and transportation/distribution; however, they may overlap if a company operates both in agricultural and food processing sector. In that case, please use both annexes together and combine their recommendations.

[4] Greenhouse gas emissions from agriculture in Europe
[5] A comprehensive investigation on energy consumptions, impacts, and challenges of the food industry
[6] Improving soil and water conservation and ecosystem services by sustainable soil management practices: From a global to an Italian soil partnership
[7] Ensuring food security and long-term resilience of EU agriculture

2. Baseline considerations

2.1 Emission scopes

This section of the annex is developed based on GHG Protocol Agriculture Guidance, GHG Protocol Standard and SBTi Guidance for Forest, Land, and Agriculture (SBTi FLAG).

For target-setting, companies should assess whether they fall under the SBTi FLAG boundary, i.e. whether a separate FLAG target is required. This is the case if:

- the company operates in an SBTi FLAG-designated sector [8], unless its FLAG-related emissions are below 5% of total Scope 1, 2 and 3 emissions; or
- the company operates in any other sector and its FLAG-related emissions account for at least 20% of total gross Scope 1, 2 and 3 emissions (excluding removals and including land use change emissions).

Companies below these thresholds are not required to set a separate FLAG target, although SBTi recommends doing so. Their FLAG-related emissions must still be included within the overall energy/industry target boundary, and no FLAG removals may be counted towards that target. SMEs are not required to set FLAG targets.

Establishing a correct baseline is crucial because it defines the starting point for all target calculations. For agriculture, a company's GHG inventory is still reported across Scope 1, 2, and 3. The additional step required by SBTi FLAG is to **separate land-related emissions** (**FLAG**) from **energy and industrial emissions** (**non-FLAG**). FLAG emissions are not an extra scope, they are a land-related subset of Scope 1 and Scope 3 emissions. FLAG emissions are further split into **LUC** (Land Use Change) emissions and **non-LUC** emissions.

[8] Forest and paper products (forestry, timber, pulp and paper, rubber), food production (agricultural production), food production (animal source), food and beverage processing, food and staples retailing, tobacco

Thus, an agriculture company's total emissions can be expressed as follows:

Gross Emissions = Non-FLAG (Emissions from operations) + FLAG (LUC Emissions + Non-LUC Emissions)

Where:

- **Emissions from operations** are the company's general corporate emissions, for example energy use for electricity and heating, transport, packaging, refrigeration, etc.
- **Direct Land Use Change (LUC) emissions** are **CO2 emissions caused when land is converted to produce a specific commodity (goods)**. Example: if a forest is cleared to create new pasture or to expand a cattle farm, the carbon stored in trees and soils is released as CO2 through burning, decay, and soil disturbance.
- **Non-LUC land emissions** are **ongoing land management emissions** linked to producing the commodity, mainly **CH4 and N2O** (and sometimes biogenic CO2 depending on the accounting approach and business model). Example: enteric fermentation and manure emissions from a cattle farm.
- **Removals** are **carbon taken out of the atmosphere and stored**, for example through biomass growth or increased soil carbon – i.e., any activities which enable capturing CO2 from atmosphere using nature-based or other solutions. Examples include afforestation or reforestation, agroforestry, improved forest management, and measured increases in soil organic carbon. These activities can be counted as removals when they are quantified[9] and attributable[10].

Accounting for removals, you can get Net Emissions of the company:

Net Emissions = Non-FLAG (Emissions from operations) + FLAG (LUC Emissions + Non-LUC Emissions - Removals)

Typical FLAG and non-FLAG emission examples are listed in Table 2.

*[9] **Quantified** means the removal is measured or calculated as a numerical value (typically in tCO2e per year) using a documented method and defensible data. The company should be able to show the activity boundary (where it happens), the baseline, the calculation approach (measurements, models, or approved factors), the time period, and the resulting annual removal estimate.*
*[10] **Attributable** means the removal can be credibly assigned to the company's actions within its boundary, rather than being a generic background carbon uptake. In practice, the company should demonstrate control or clear rights over the land or project (ownership, lease, or contractual claim), specify the exact area and activity, show that the removal results from an identifiable intervention (for example planting trees, changing management practices to increase soil carbon), and ensure it is not double-counted or claimed by another party for the same carbon benefit.*

Table 2. Examples of FLAG and non-FLAG emissions

FLAG or non-FLAG	Emission source	Typical scope and Scope 3 category	Example
FLAG *non-LUC*	Enteric fermentation	**Scope 1** if animals are owned/operationally controlled. **Scope 3 Cat 1 (Purchased goods and services)** if emissions are from supplier herds.	Dairy processor buying raw milk, upstream enteric emissions sit in Cat 1.
	Manure management	**Scope 1** if manure management is in your controlled operations. **Scope 3 Cat 1** if manure management occurs at suppliers/contract farms you do not control. **Scope 3 Cat 10 (Processing of sold products)** if you sell manure and a third party processes it (e.g. anaerobic digestion, composting).	You sell manure to a biogas plant, digestion emissions are Cat 10.
	Soil N2O from fertiliser application and residues	**Scope 1** if fertiliser/residue emissions occur on land you operate/control. **Scope 3 Cat 1** if they occur on supplier farms (embedded in purchased crops/animal products).	Food company buying grain, upstream soil N2O is Cat 1.
FLAG *LUC*	Deforestation / land conversion attributed to commodity	**Scope 1** if on land you operate/control. **Scope 3 Cat 1** if in supply chain of purchased commodities.	Beef buyer sourcing from deforestation risk regions, LUC is Cat 1.
Non-FLAG	On-farm diesel in tractors and machinery	**Scope 1** (stationary/mobile combustion you control).	Farm fuel use in own equipment.
	Refrigerant leakage (cooling, cold stores)	**Scope 1** if equipment is operated/controlled.	Cold storage with HFC leakage.
	Purchased electricity (irrigation, cooling, drying)	**Scope 2** (market or location based).	Irrigation pumps on grid electricity.

2.2 Climate risks

Agricultural sector faces growing risks from both physical climate impacts and the policy, market, and technological shifts driving the global low-carbon transition. These risks affect crop yields, livestock productivity, supply chain reliability, and long-term business viability[11].

Transition risks:

- Agriculture is exposed to higher production costs as carbon pricing mechanisms expand to fertiliser production, energy use and transport. These policies can significantly raise the cost of nitrogen fertilisers, fuel, and energy-intensive inputs. UNEP FI agricultural sector's climate risk briefing highlights that higher carbon prices will increase operating expenses across agricultural value chains, particularly for emissions-intensive inputs such as synthetic fertilisers[12].
- European climate policy frameworks, e.g. the EU Farm to Fork Strategy[13], Common Agricultural Policy[14] (CAP) reforms, Water Framework Directive[15] (WFD), Nitrates Directive[16], and methane reduction rules, create pressure to adopt more sustainable and lower-emission agricultural practices. Compliance may require new technologies, altered production methods or land management changes.
- Technological progress in precision agriculture, low-emission fertilisers, improved livestock feed, and data-driven farm management which may also contribute to emission reduction may put farmers who do not modernise at a competitive disadvantage[17].
- Consumers, retailers, and processors increasingly demand products with lower carbon footprints and greater traceability. This trend affects grain, dairy, livestock, and horticultural producers[18]. This can be a risk but also an opportunity for certain agriculture businesses – e.g., a potential shift from animal-based to plant-based products may increase business opportunities for farmers specialising in grain, vegetables, and fruits. At the same time, that would reduce business opportunities for livestock farms.[19] Although the scientific evidence is not straightforward, the trend for choosing organic products

[11] Climate Risks in the Agriculture Sector
[12] Climate Risks in the Agriculture Sector
[13] From farm to fork
[14] Common agricultural policy
[15] Water Framework Directive
[16] Surface water
[17] Precision Agriculture
[18] EU Agricultural Outlook 2025-35: EU agriculture navigates challenges while embracing opportunities
[19] The shift from meat to plant-based proteins: consumers and public policy

instead of products delivered by conventional farms is also considered and may similarly be a risk and an opportunity at the same time – depending on the farmers' business model.

- Financial institutions increasingly put more pressure on agricultural emissions and require climate-aligned business models[20]. Farmers without credible transition plans may face limited credit access or higher financing costs.
- Producers relying heavily on synthetic fertilisers, intensive livestock systems or monocultures may face reputational challenges as public awareness increases when it comes to biodiversity loss, resource management practices and GHG emissions management[21].
- As climate and environmental regulations strengthen[22], farmers may face litigation or sanctions related to nutrient runoff, methane emissions or land-use decisions. This can potentially be caused by an emerging trend of legal risk across sectors where environmental accountability is increasing, with agriculture among the most exposed due to land and input intensity.

[20] *Climate Risks in the Agriculture Sector*
[21] *Climate Risks in the Agriculture Sector*
[22] *Climate Risks in the Agriculture Sector*

Physical risks:

- Agriculture in Europe, including the Baltics, faces growing physical climate risks[23] as weather patterns become more volatile and extreme. Farms are increasingly exposed to heat stress, droughts, heavy rainfall, storm damage, and flooding, all of which directly affect crop yields, livestock productivity, and farm income. These conditions can reduce both the quantity and quality of agricultural output making production less predictable and more vulnerable to acute losses.
- Longer-term chronic risks[24] such as shifting temperature zones, changing pest and disease pressures, and soil degradation, further undermine the resilience of farming systems. These climate impacts also ripple across supply chains by affecting the availability of raw agricultural products, feed sources, and transport routes, potentially disrupting distribution networks, and increasing costs. For farms and companies operating in the agricultural sector, it becomes essential to assess how local climate projections may affect buildings, machinery, storage facilities, and irrigation infrastructure, as physical damage or operational downtime can significantly hinder production continuity.
- In the Baltic states, increasing precipitation and/or extreme storms and rainfalls have already demonstrated their damaging effects on the agriculture sector[25],[26],[27].
- Overall, the sector's deep dependence on stable environmental conditions makes the agricultural sector highly sensitive to both acute and chronic physical climate risks, requiring proactive adaptation measures to safeguard productivity and economic stability.

[23] Climate Risks in the Agriculture Sector
[24] Climate Risks in the Agriculture Sector
[25] Lithuania declares agriculture emergency after crops damaged by rain
[26] Almost 200 farmers' claims over storm damage filed in Latvia
[27] Estonian government declares virtual emergency situation in agriculture

2.3 Summary

The following matrix covers key considerations on significance of Scope 1, 2, and 3 emissions for the sector. Respectively:

- “High” significance scopes and emission categories are those that contribute most to total emissions. These should be calculated as accurately as possible and are usually the priority emission categories to focus on in your transition plan;
- “Moderate” significance means that emissions in the respective scope or category are relatively important but are not the most important part and, potentially, not the first priority for emission reduction;
- “Low” significance means that the emissions in the respective scope or category are rather insignificant in general or compared to other scopes and can be either left out of the transition plan priorities or dealt with at a later stage.

Please note that if your company operates in logistics and distribution (input materials, e.g. fertilisers), please view the relevant sector annex - Manufacturing and/or Road transport.

Table 3. Summary on key considerations for each role

Scope / Risks	Livestock (incl. dairy)	Crops	Feed producers
Scope 1	**High:** Enteric fermentation (i.e. methane, CH_4); Manure storage and management (CH_4 and N_2O); Soil amendments and soil management (N_2O) (incl. synthetic/organic fertilisers (e.g. manure, compost, sewage sludge), urine and dung that is deposited by grazing animals, incorporation of crop residues into soils and fixation of nitrogen by legumes, nitrogen mineralisation associated with the loss of soil organic matter and caused by changes in land use or soil management (e.g. drainage)) **Variable:** Fuel combustion from owned or controlled vehicles and/or equipment; Fugitive emissions (e.g. refrigeration); Energy generation onsite (if applicable)	**High:** Manure storage and management (CH_4 and N_2O); Soil amendments and soil management (N_2O) (incl. synthetic/organic fertilisers (e.g. manure, compost, sewage sludge), urine and dung that is deposited by grazing animals, incorporation of crop residues into soils and fixation of nitrogen by legumes, nitrogen mineralisation associated with the loss of soil organic matter and caused by changes in land use or soil management (e.g. drainage)); Soil liming **Variable:** Fuel combustion from owned or controlled vehicles and/or equipment; Fugitive emissions (e.g. refrigeration); Energy generation onsite (if applicable)	**High:** If any feed is produced onsite, please see the emissions categories under "Crops" **Moderate:** Fuel combustion from owned or controlled vehicles and/or equipment; Energy generation onsite (if applicable)

Scope 2	**Moderate:** Purchased energy for onsite operations	**Moderate:** Purchased energy for onsite operations (can be high if the company operates greenhouses)	**High:** Purchased energy for onsite operations
Scope 3	**Moderate:** **Category 1** (Purchased goods & services) – e.g. fertilisers, feed, packaging for final product; Category 3 (Fuel- and energy-related emissions not included in Scope 1 and 2 or so-called Well-to-Tank (WTT) emissions); **Category 4** (Upstream transportation & distribution) – transport of feed, animals, supplies; **Category 9** (Downstream transport & distribution) – transportation of final product; **Category 10** (Processing of sold products) – e.g. slaughter, dairy processing	**Moderate:** **Category 1** (Purchased goods & services) – e.g. fertilisers, pesticides, packaging for final product; **Category 2** (Capital goods) – e.g. equipment, machinery; **Category 3** (Fuel- and energy-related emissions not included in Scope 1 and 2 or so-called Well-to-Tank (WTT) emissions); **Category 4** (Upstream transportation & distribution) – transport of inputs, e.g. fertilisers, seeds; **Category 9** (Downstream transport & distribution) – transportation of final product; **Category 10** (Processing of sold products) – e.g. processing of final product	**High:** **Category 1** (Purchased goods & services) – e.g. purchased grains, soy, proteins; **Category 2** (Capital goods) – e.g. equipment, machinery; **Category 3** (Fuel- and energy-related emissions not included in Scope 1 and 2 or so-called Well-to-Tank (WTT) emissions); **Category 4** (Upstream transportation & distribution) – transported input resources to the facilities/production sites; **Category 9** (Downstream transport & distribution) – transportation of final product; **Category 11** (Use of sold products) – i.e. livestock emissions influenced by feed
Other consid-erations	• **Land-use change (LUC) emissions**[28]: A change from one land use category to another – categories defined by IPCC include Forestland, Grassland, Cropland, Wetland, Settlement and Other Land. Direct LUC (dLUC) occurs when carbon stocks decline due to a change in land use on land a company owns or controls (Scope 1) or on lands in a company's value chain (Scope 3). A 20-year GHG emissions allocation is required (e.g. a company would estimate the carbon changes in biomass, dead organic matter and soil carbon pools over 20 years). Indirect LUC (iLUC) can only be estimated through consequential life cycle assessment approaches and reflects a carbon stock loss due to land conversion on lands not owned or controlled by the company or in its supply chain, induced by change in demand for products produced or sourced by the company. • **Carbon removals and storage:** As per the SBTi FLAG Guidance, carbon storage and removals should be reported separately from GHG emissions and the accounting should be based on the GHG Protocol Land Sector and Removals Guidance. The guidance defines net biogenic CO_2 emissions as net land carbon stock decreases and net biogenic CO_2 removals as net land carbon stock increases where carbon is stored for a period of time and that meet certain reporting criteria[29]. Biogenic removals are usually associated with one or more of the following: Biomass (above and below ground), dead organic matter (dead wood and litter) and soil organic matter. Emissions and removals from production and end use of bioenergy are not included in this category.		

[28] FOREST, LAND AND AGRICULTURE SCIENCE-BASED TARGET-SETTING GUIDANCE
[29] FOREST, LAND AND AGRICULTURE SCIENCE-BASED TARGET-SETTING GUIDANCE

Other considerations (*cont.*)	Companies should only include CO_2 removals with ongoing storage and monitoring in their net GHG targets (e.g., forest restoration, agricultural soil carbon), since only removals with ongoing storage help reduce the cumulative global emissions that drive climate change. Companies should only include land removals in their inventory and target coverage if: • They have sufficient traceability to the land where the removal occurs as per the GHG Protocol Land Sector and Removals Guidance; • The figures for removals are based on primary data verified by a third-party organisation (e.g. certification body, via audit), OR the removals are based on representative data (e.g. primary and secondary data combined), verified by a third-party organisation (e.g. certification body, via audit). • Removals occurring on land from which several companies purchase commodities are not double counted in each of these companies' inventory. Please note that land-based removals that are credited and sold for use as offsets cannot be used to meet SBTi FLAG targets. • There is ongoing storage monitoring of the removals reported. Additional guidance in line with the SBTi is also developed by the GHG Protocol (Land Sector and Removals Standard).	
Climate risks	**Transition risks:** Increased production costs (due to regulatory demands, necessity to improve energy efficiency, upgrade technologies, etc.); changing consumer patterns (from animal-based to plant-based food) **Physical risks:** Weather conditions and changes that decrease availability or increase costs of quality feed; extreme storms and floods affecting the territory where livestock is located; expansion of invasive species and pests; potential limitation of water use	**Transition risks:** Increased production costs (due to regulatory demands, necessity to improve energy efficiency, upgrade technologies, etc.); limitations on fertiliser use; pressure from downstream value chain to deliver lower-carbon feed and/or crops **Physical risks:** Weather conditions and changes that damage crops (storms, hail, rainfalls, flooding); expansion of invasive species and pests; potential limitation of water use

Depending on the type of entity and emission sources as highlighted above, there are several decarbonisation measures that companies can implement. Those are considered in Section 4.2.

3. National agriculture targets and strategic directions – Baltic States

This table contains only headline national targets that are explicitly framed as policy targets or commitments in source documents. Economy-wide targets (climate neutrality) are included where they directly frame the agriculture sector.

Disclaimer: The targets, policy measures and legal references in this overview are up to date to the best of our knowledge as of March 2026. Climate, energy and sectoral policy frameworks are evolving, and national targets, implementation pathways, and supporting measures may be revised, supplemented or replaced over time. In particular, Estonia is still advancing parts of its climate-policy architecture, including newer framework legislation and sector planning documents. In addition, the transposition status of EU legislation, including RED III, may continue to change as further national measures are adopted and notified to the European Commission.

Table 4. Relevant National Targets/Commitments

Theme	Estonia[30]	Latvia[31]	Lithuania[32]
GHG reduction (2030)	Agriculture embedded in ESR: -24% across all non-ETS sectors vs 2005. Global Methane Pledge signatory: -30% methane vs 2020.	Explicit sectoral target: -21.5% vs 2005 (NECP).	Explicit sectoral target: -11% vs 2005. Complemented by sub-sector targets (fertiliser, manure, biogas).
Organic farming	23% of agricultural land was organic in 2022; eco-scheme support continues. No new formal target set.	At least 25% of agricultural land organic by 2030[33].	Double organic area vs 2020 (~16.2% of utilised agricultural area by 2030).
Methane / manure	Three new biogas plants from 2027 for manure methane reduction.	Feed-ration and feed-quality programmes for dairy cows.	50% of swine/cattle manure to biogas; 70% of manure/slurry managed sustainably.

Fertiliser management	Projections indicate that the amount of nitrogen-containing fertilisers will decrease by 8.5% by 2055 compared with 2022.	Precision nitrogen fertiliser application targeted on a large share of arable land; legume crop rotation targets.	Target: -15% nitrogen-based mineral fertiliser vs 2020. Integrated pest management expansion.
Farm-level carbon accounting	Farm carbon footprint assessment tool under development (no hard deadline).	No explicit system announced in source documents.	National farm-level GHG accounting system mandated from 2025.
Fossil fuel exit in agriculture	N/A	N/A	Eliminate fossil fuel use in agriculture by 2040.
2050 direction	Climate neutrality economy-wide; no agriculture-specific net zero target.	Climate neutrality economy-wide; residual agriculture emissions offset via land use and forestry (LULUCF). No agriculture-specific net zero target.	Climate neutrality economy-wide; residual agriculture emissions offset via land use and forestry. No agriculture-specific net zero target.

[30] Updated National Energy and Climate Plan to 2030 (Estonia)
[31] Updated National Energy and Climate Plan 2021–2030 (Latvia)
[32] Final Updated National Energy and Climate Action Plan 2021–2030 (Lithuania)
[33] Action plan for the development of organic farming for 2023–2030

4. Target setting

4.1 Science-based approach

Based on Science Based Targets initiative (SBTi) FLAG guidance, a company should set a FLAG target if it:

- Operates in food production (agricultural production or animal-source production) or
- Has FLAG-related emissions that constitute 20% or more of total gross emissions across Scope 1, 2, and 3 (gross means that potential carbon removals are not subtracted).

SBTi offers two FLAG target-setting approaches:

- Commodity approach (11 commodity pathways) – suitable for organisations that are producing one of the 11 types of agricultural commodities. For example, if you only grow chicken, you can use this approach for target-setting.
- Sector approach (FLAG sector pathway) – suitable for organisations with a mix of commodities produced, which are not easy to distinguish from each other, e.g. companies with diversified land-related emissions across multiple activities or commodities, midstream and downstream companies (traders, processors, retailers) where supply chains are mixed or vertically integrated businesses with single commodity pathways hard to isolate. For example, this approach would be better suited to a company or group of agriculture companies which at the same time grows cattle and multiple types of corn, as well as manufactures some processed goods and ensures logistics for cattle, grain and end-products.

- **Make sure that the selected approach covers at least the minimum required amount – 95% of FLAG Scope 1 and 67% of FLAG Scope 3 emissions.**

Non-FLAG emissions (energy and industrial emissions across Scope 1–3) should follow the general SBTi target-setting approach described in the general guidelines. FLAG targets are complementary to and must be kept separate from energy and industry targets.

If FLAG emissions are below 20% of total Scope 1, 2, and 3 emissions for the company, it may still set a FLAG target. If it does not set a separate FLAG target, FLAG gross emissions must still be included in the overall target boundary, and FLAG removals cannot be counted towards a non-FLAG target.

Note: FLAG accounting and targets cover land-related emissions and removals up to the farm gate. Emissions occurring past the farm gate (for example transport, processing, storage) are included in the energy and industry inventory and targets.

4.1.1. Commodity approach

Split your Scope 1–3 inventory into FLAG and non-FLAG emissions

Baseline calculations are FLAG Emissions + Non-FLAG Emissions. Next, baseline intensity needs to be calculated – for that, you need to decide which commodities to include (beef, chicken, dairy, leather, maize, palm oil, pork, rice, soy, wheat, and timber & wood fibre).

Minimum inputs required:

- Decide on commodity to include (see above);
- Decide on Region, for the Baltics – Central Europe;
- A_b - activity level in the base year, i.e. the amount of your economic output – for example, tonne for meat or m^3 for wood and fibre production.

Building Base year emissions:

You need to calculate base-year emissions in tCO2e split into:

1) Non-LUC Emissions

Ongoing land management emissions tied to producing the commodity, mainly CH4 and N2O (and sometimes biogenic CO2 depending on accounting). Examples include enteric fermentation, manure management, and soil N2O from fertiliser application and residues.

2) LUC Emissions

CO2 emissions from land conversion attributed to the commodity, for example deforestation to create new pasture or expand cropland. LUC can occur in Scope 1 (owned or controlled land) or Scope 3 (supply chain), depending on where the conversion happens.

3) Removals R_b (optional)

Only if you have quantified, attributable removals (forest biomass growth, soil carbon increases, agroforestry, etc.). Otherwise set to 0.

4) Important practical note: some fossil emissions that are not technically land-based, such as on-farm machinery fuel and fertiliser production emissions, may be included within FLAG accounting in some datasets and tools. They may also be included under energy and industry accounting but must not be double counted across FLAG and non-FLAG emissions.

If you do not have LUC emissions data, the SBTi tool provides a default shortcut:

- Use the regional LUC intensity factor from the Commodity Data sheet (Tbl_LUC) and estimate LUC emissions (fixed over time, see Table 5). You can also refer to GHG Protocol methodology for Land Sector and Removals[34].

Table 5. Default values for LUC Emissions, Central Europe

Commodity	Unit	Default LUC intensity
Beef	tCO2e / t fresh weight	7.459912
Chicken	tCO2e / t fresh weight	1.300771
Dairy	tCO2e / t fresh weight	0.340191
Leather	tCO2e / t fresh weight	3.729956
Maize	tCO2e / t fresh weight	0.189756
Palm Oil*	tCO2e / t fresh weight	0.000000
Pork	tCO2e / t fresh weight	1.182429
Rice	tCO2e / t fresh weight	0.330226
Soya	tCO2e / t fresh weight	0.662225
Wheat	tCO2e / t fresh weight	0.198596
Timber & wood fibre	tCO2e / m^3	0.000740

** Palm oil is not produced in Central Europe, so the tool's regional value is zero. LUC emissions for palm oil shall be calculated using the default for the sourcing region (e.g. Indonesia region 2.408, Southeast Asia 0.441 tCO2e/t crude palm oil), or the global value (1.347) where origin is unknown.*

[34] Forest, Land, and Agriculture (FLAG) Target Setting Tool

Calculate your base-year emission intensities:

- Non-LUC intensity

$$Intensity\ (non\text{-}LUC)_{base} = Emissions\ (non\text{-}LUC)_{base} \div Activity_{base}$$

- LUC intensity

$$Intensity\ (LUC)_{base} = Emissions\ (LUC)_{base} \div Activity_{base}$$

- If you used the default inputs, then Intensity $(LUC)_{base}$ equals that default factor, e.g. 7.459912 for beef, from which you can estimate Emissions $(LUC)_{base}$ as follows:

$$Emissions\ (LUC)_{base} = Intensity\ (LUC)_{base} \times Activity_{base}$$

- Removals intensity

$$Intensity\ (removals)_{base} = Emissions\ (removals)_{base} \div Activity_{base}$$

- FLAG gross intensity

$$Intensity\ (FLAG)_{base} = Intensity\ (non\text{-}LUC)_{base} + Intensity\ (LUC)_{base}$$

- FLAG net intensity (if removals are included)

$$Intensity\ (FLAG)_{base} = Intensity\ (non\text{-}LUC)_{base} + Intensity\ (LUC)_{base} + Intensity\ (removals)_{base}$$

Project your operational activity and convert pathway intensity into an emissions budget (acceptable level of emissions for the target year):

- Project activity levels at the target years, e.g. $Activity_{2030}$ – i.e. you need to project what output volume for your livestock / crops or other agricultural output you expect in the given year.

- Compute “allowed” emissions from non-LUC activities, as follows using target year intensity values from Table 6:

$$Emissions\ (non\text{-}LUC)_{2030} = Intensity\ (non\text{-}LUC)_{2030} \times Activity_{2030}$$

Table 6. Non-LUC intensity pathway targets, Central Europe[35]

Commodity	Unit	2030	2040	2050
Beef	tCO2/t fresh weight	15.993397	14.896083	13.608797
Chicken	tCO2/t fresh weight	2.182171	1.760436	1.527731
Dairy	tCO2/t fresh weight	0.894244	0.823375	0.751031
Leather	tCO2/t fresh weight	7.996698	7.448042	6.804399
Maize	tCO2/t fresh weight	0.428530	0.348769	0.337380
Palm Oil	tCO2/t fresh weight	0.470475	0.387279	0.374902
Pork	tCO2/t fresh weight	3.952077	3.275521	2.940759
Rice	tCO2/t fresh weight	1.932599	1.814698	1.774437
Soya	tCO2/t fresh weight	0.470475	0.387279	0.374902
Wheat	tCO2/t fresh weight	0.460731	0.380759	0.368835
Timber & wood fibre	$tCO2/m^3$	0.008733	0.007510	0.007047

***Note**: If the relevant agricultural commodity is not included in this table, for example, other cereal crops besides wheat, rapeseed, vegetables, etc., the separate commodity approach does not apply. In such cases, emissions should be included in the overall FLAG sector approach described on the next page, as this also applies to certain crops typical of the Baltic region for which no specific indicators are defined in the SBTi methodology.*

[35] SBTi FLAG tool

- Compute LUC Emissions (using fixed intensity from Table 5)

$$Emissions\ (LUC)_{2030} = Intensity\ (LUC) \times Activity_{2030}$$

- Compute total emissions budget for 2030 (FLAG emissions)

$$FLAG\ Emissions_{2030} = Emissions\ (non\text{-}LUC)_{2030} + Emissions\ (LUC)_{2030} + Removals_{2030}\ (if\ any)$$

- Convert to annual reduction slope (example for 2025-2030 target)

$$Annual\ reduction\ rate = 1\text{-}\ (FLAG\ Emissions_{2030} \div FLAG\ Emissions_{2025})^{(1/5)}$$

The result of this exercise gives you a number how much emissions you need to reduce each year to achieve the target.

4.1.2. Sector approach[36]

The sector approach differs from the commodity approach in that the company sets a FLAG target using an absolute emissions reduction pathway, rather than commodity-specific intensity pathways.

Companies may also combine both approaches, using commodity pathways for eligible commodities and the sector pathway for the remaining FLAG emissions.

For both approaches, FLAG targets are set separately from energy/industry targets, and emissions and removals are reported separately within the FLAG framework.

- The FLAG target must cover at least 95% of FLAG-related Scope 1 emissions and at least 67% of FLAG-related Scope 3 emissions, with each threshold met independently of the energy/industry Scope 3 coverage.

[36] *SBTiFLAGGuidance.pdf*

Minimum inputs required:

In the sector approach, LUC and non-LUC emissions are not entered separately. You use total land-related activity emissions for the company's full inventory in the base year.

- Define base year
- Calculate base-year FLAG gross emissions in tCO2e (total land-related emissions)
- Calculate base-year removals in tCO2e (reported separately) – if applicable
- Define target year

Calculate the FLAG target

Under the SBTi FLAG sector pathway, the guidance requires an absolute reduction rate of 3.03% per year and describes the rate in linear terms (for example, a 10-year period corresponds to a 30.3% emission reduction).

Therefore, when setting a target from **2025 (base year) to 2030 (target year)**, the expected emission reduction is calculated as follows:

$$\textit{Target FLAG Emissions}_{2030} = \textit{Baseline FLAG Emissions}_{2025} \times (1\text{-}3.03\% \times 5 \text{ years}) = \textit{Baseline FLAG Emissions}_{2025} \times 0.8485$$

For non-FLAG target-setting use the approach defined in the general guidelines.

4.2 Key emission reduction measures

Agriculture plays a meaningful role in the Baltic economies and emissions profiles, driven largely by livestock production, cereal or grain cultivation and fertiliser-intensive practices. Similar to wider European agriculture, the Baltic region faces rising pressure to reduce emissions from methane (enteric fermentation, manure) and nitrous oxide (fertilised soils) while increasing the sector's long-term resilience and competitiveness. Therefore, agriculture is identified as a sector with significant mitigation potential, especially through soil carbon improvements, agroforestry, optimised nutrient management, and strategies that reduce methane and nitrous oxide emissions.

Examples of **cropland management** (more insights on decarbonisation opportunities can be found on EU CAP Network and AgriFood Lithuania):

- **Soil carbon enhancement:** Adoption of cover crops, reduced tillage, crop rotations, and regenerative practices can increase carbon sequestration and improve soil health. For instance, EU-funded SoilValues Horizon project[37] (active in nine countries, including Lithuania) explores the opportunities for developing successful soil health business models by establishing and implementing a comprehensive assessment framework, testing and refining business models at 6 European pilot sites (the Netherlands, Poland, Denmark, Portugal, Belgium, Germany), establishing 12 communities of practice (land managers, value chain actors, investors and public authorities for soil health business models), creating a toolbox of incentives and policy recommendations, and fostering broader awareness and knowledge exchange.
- **Precision fertilisation & nitrogen optimisation:** Advanced application methods reduce nitrous oxide emissions. The Common Agricultural Policy (CAP) is putting a lot of focus on precision fertilisation and, for example, projects in the Netherlands, Poland, and across Europe like STRATUS (ongoing knowledge sharing project) and FlexiGroBots (focus on precision agriculture), show positive outcomes of implementation of new technologies and approaches to such activities.
- **Biochar application[38]:** Helps sequester carbon, increase soil retention capacity, and reduce fertiliser requirements. It can be produced from different types of feedstock materials, including some waste materials that have no other use, such as domestic green waste, agricultural and forestry residues. Biochar can potentially be applied to soils to sequester carbon for centuries, removing carbon dioxide from the atmosphere while not only helping achieve targets but also potentially rapidly raising the soil organic carbon level of agricultural soils.

[37] Enhancing Soil health through Values-based business models
[38] Application of Biochar

Examples of **livestock mitigation measures** (more insights on decarbonisation opportunities can be found on EU CAP Network and AgriFood Lithuania):

- **Improved feeding strategies** (better digestibility, dietary additives) reduce methane from enteric fermentation, one of the largest global agricultural emissions sources. In order to reduce generated emissions from feed, various ongoing projects on an EU level are exploring opportunities from digitalisation and optimisation of feeding activities (e.g. multifunctional smart livestock feeding and monitoring system in Croatia, e-Feed in Luxembourg, development of a feed mixing system using a NIR sensor (for live measurement and optimisation of rations) in the Netherlands, feed quality management in cattle breeding based on the innovative feed optimization system "Feed - 360" in Poland).
- **Modern manure management** (anaerobic digestion, covered storage, solid-liquid separation) reduces CH_4 and enables renewable biogas production. Biogas development is expanding, making methane capture solutions regionally relevant. Projects such as valuing carbon in manure in Finland, innovative animal manure processing in the Netherlands, manure quality as an indicator of ammonia emissions in the Netherlands, Manure upgrading for circular farming and healthy soils (MUCHS) in the Netherlands, and fertigation with pig manure digestate across Europe are exploring innovative manure management and promotion of circular farming.
- **Animal health and productivity improvements** to reduce emissions per unit of output.

Examples of **grassland and land-use management** (more insights on decarbonisation opportunities can be found on EU CAP Network and AgriFood Lithuania):

- **Agroforestry and silvopasture:** Agroforestry combines crops and trees within a single land-use system, where the trees provide additional forestry products alongside the farmed crops, while silvopastoralism (essentially a pasture-based form of agroforestry) integrates grasslands with shrubs and trees, and like other agroforestry systems, stores substantially more carbon in Europe's soils and vegetation over the long term[39]. These practices can also be significant contributors to mitigation and biodiversity recovery[40]. Note that so-called tree plantations (i.e. agriculture lands intensively managed and exclusively used for growing trees for economic purposes, without the aim to transform the land into a natural forest, and meeting all of the following criteria at planting and stand maturity: one or two species, even age class, and regular spacing[41]) shall not be considered as a decarbonisation measure[42].

[39] Potential of Circular Economy Actions to reduce Greenhouse Gas Emissions
[40] Analytical work: supporting the maintenance, restoration, or establishment of agroforestry systems
[41] Land Sector and Removals Standard
[42] FOREST, LAND AND AGRICULTURE SCIENCE-BASED TARGET-SETTING GUIDANCE

- **Grassland restoration:** Reduces soil degradation and strengthens carbon sinks. Projects such as Shared Innovation Space for Sustainable Productivity of Grasslands in Europe, farming with, and for, biodiversity on lowland farms in Slovenia, GrassLIFE in Latvia, and turning grassland grazing into climate solution in Estonia provide various benefits to sustainable grassland management (e.g. ensuring biodiversity and essential ecosystem services such as water regulation, pollination, and soil carbon storage[43]).
- Avoiding land-use change: Preventing further conversion of grasslands to cropland protects stored carbon.

Examples of **feed production** (more insights on decarbonisation opportunities can be found on EU CAP Network and AgriFood Lithuania):

- **Sustainable sourcing** of feed crops (soy alternatives, legumes[44]) reduces high upstream emissions from fertiliser and land-use change.
- **Precision nutrient management** in feed-crop farming. Similar approaches and examples can be considered for precision agriculture and livestock feeding.
- **Reducing food loss in supply chains** contributes to upstream GHG reductions. Even though high- and middle income countries in Europe, North America and Industrialised Asia have a higher on-farm mechanisation level, most of the harvest waste (58% of all global harvest waste) takes place exactly there[45]. To decrease food loss in the supply chain on a farm level a company should take a holistic approach – besides demand-based production, the aforementioned climate adaptation and mitigation measure examples in this section (starting from soil and animal health to farm's infrastructure, storage, and processing facilities) should be implemented in order to become more resilient to physical and transition climate risks in the near and longer term.

When it comes to logistics, the closer a client (or a cooperation partner) is to you, the less emissions transportation will create. Try to choose zero-emission or low-emission modes of transport and partners which can ensure such distribution. If, nevertheless, products need to be transported over larger distances, choose less emission-intensive modes of transport if possible (sea and/or rail instead of road transport or air). For more information on decarbonisation measures for Road transport, please see the relevant annex.

[43] Grasslands Are Some of Earth's Most Underrated Ecosystems
[44] Enhancing of legumes growing in Europe through sustainable cropping for protein supply for food and feed
[45] Driven to Waste

5. Important questions

Key questions you should be able to answer your financial partner (a bank, investor, etc.) or other cooperation partners:

- **Where you are now:** What are your main production activities (e.g. livestock, dairy, grains, vegetables), and which of them generate the highest emissions? How do you manage key emission sources such as fertiliser application, enteric fermentation, manure management, and soil cultivation? What type of energy resources do you use for farm operations (e.g. electricity, diesel, natural gas, renewables), and which processes consume the most energy? How dependent is your business on water availability, and do you currently measure water use, soil health indicators, or nutrient losses (e.g. nitrogen leaching)? What is the geography of your supply chains for seeds, feed, fertilisers, pesticides, and for distributing your products? Have you assessed other environmental indicators such as soil carbon, food loss at farm level, or biodiversity impacts?
- **Where do you see the largest improvement opportunities:** What options do you see for reducing emissions from livestock (e.g. improved feed, manure management, herd efficiency), soil practices (e.g. precision fertilisation, cover crops), or energy use? Which alternative or low-emission farming technologies seem most suitable for your operations (e.g. digital monitoring tools, methane-reducing feed additives, precision agriculture)? When do you plan to reduce fossil-fuel use in machinery or switch to electrified or biofuel-powered equipment? What factors support or hinder the adoption of these solutions (e.g. technology readiness, skilled labour, availability of data, policy incentives)? Are there opportunities for collaboration across the value chain (e.g. with feed suppliers, processors, retailers, or input manufacturers) to reduce emissions and increase efficiency?
- **What are the key climate risks for your business and how do you manage those:** How vulnerable are your crops or livestock to climate-related risks such as drought, heat stress, heavy rainfall, soil degradation, or pests? Have you assessed potential supply-chain disruptions (e.g. fertiliser shortages, feed availability, water scarcity, extreme-weather impacts on logistics)? Do you foresee a need to modify crop types, adapt planting schedules, adjust livestock housing, or change irrigation systems in response to climate change? What risk management or resilience strategies are you already

implementing (e.g. diversification, irrigation upgrades, drought-resistant crops, insurance products)? How do you track early warning indicators for climate risks, and how often are these assessments integrated into strategic planning?

- **What investment do you need to achieve the climate targets and what is your business plan for that:** What types of investments will be required to modernise farming operations (e.g. precision equipment, manure management systems, irrigation upgrades, renewable energy installations, or low-emission machinery)? Do you anticipate significant capital needs for improving soil health, reducing fertiliser use, or implementing digital monitoring technologies? What uncertainties or risks could affect the implementation of these investments (e.g. fluctuating commodity prices, regulatory changes, technology costs)? What funding sources are you exploring (incl. grants, subsidies, green loans, carbon farming schemes, partnerships)? How do you plan to manage investments over time, and what are the expected operational or financial gains once these climate-aligned measures are implemented?

6. References

- AgriFood Lithuania. (n.d.). The future of smart agriculture is now. https://agrifood.lt/en/
- Altobelli, F., Vargas, R., Corti, G., Dazzi, C., Montanarella, L., Monteleone, A., Caon, L., Piazza, M. G., Calzolari, C., Munafò, M., & Benedetti, A. (2020). Improving soil and water conservation and ecosystem services by sustainable soil management practices: From a global to an Italian soil partnership. Italian Journal of Agronomy, 15(4), 293–298. https://doi.org/10.4081/ija.2020.1765
- Cabinet of Ministers of the Republic of Latvia. (2024). Aktualizētais Nacionālais enerģētikas un klimata plāns 2021.–2030. gadam [Updated national energy and climate plan for 2021–2030]. Likumi.lv. https://likumi.lv/ta/id/353615
- Climate-ADAPT. (n.d.). Precision agriculture. https://climate-adapt.eea.europa.eu/en/metadata/adaptation-options/precision-agriculture
- Corigliano, O., & Algieri, A. (2024). A comprehensive investigation on energy consumptions, impacts, and challenges of the food industry. Energy Conversion and Management: X, 23, Article 100661. https://doi.org/10.1016/j.ecmx.2024.100661
- ERR.ee. (2025). Estonian government declares virtual emergency situation in agriculture. https://news.err.ee/1609770552/estonian-government-declares-virtual-emergency-situation-in-agriculture
- EU CAP Network. (n.d.). Advisor network for optimal fertilisers use. https://eu-cap-network.ec.europa.eu/projects/advisor-network-optimal-fertilisers-use_en
- EU CAP Network. (n.d.). Application of biochar. https://eu-cap-network.ec.europa.eu/projects/practice-abstracts/application-biochar_en
- EU CAP Network. (n.d.). Development of a feed mixing system using a NIR sensor (for live measurement and optimisation of rations). https://eu-cap-network.ec.europa.eu/projects/development-feed-mixing-system-using-nir-sensor-live-measurement-and_en#tab_id=practice_abstracts
- EU CAP Network. (n.d.). Enhancing soil health through values-based business models. https://eu-cap-network.ec.europa.eu/projects/enhancing-soil-health-through-values-based-business-models_en#tab_id=overview
- EU CAP Network. (n.d.). Estonian farmer turns grassland grazing into climate solution. https://eu-cap-network.ec.europa.eu/good-practice/estonian-farmer-turns-grassland-grazing-climate-solution_en#tab_id=overview
- EU CAP Network. (n.d.). EU CAP Network. https://eu-cap-network.ec.europa.eu/index_en
- EU CAP Network. (n.d.). Farming with, and for, biodiversity on lowland farms. https://eu-cap-network.ec.europa.eu/good-practice/farming-and-biodiversity-lowland-farms_en#tab_id=results

- EU CAP Network. (n.d.). Feed quality management in cattle breeding based on the innovative feed optimization system "Feed - 360". https://eu-cap-network.ec.europa.eu/projects/feed-quality-management-cattle-breeding-based-innovative-feed-optimization-system-feed-360_en
- EU CAP Network. (n.d.). Fertigation with pig manure digestate. https://eu-cap-network.ec.europa.eu/projects/fertigation-pig-manure-digestate_en
- EU CAP Network. (n.d.). Innovative animal manure processing. https://eu-cap-network.ec.europa.eu/projects/innovative-animal-manure-processing_en#tab_id=practice_abstracts
- EU CAP Network. (n.d.). Manure quality as an indicator of ammonia emissions. https://eu-cap-network.ec.europa.eu/projects/manure-quality-indicator-ammonia-emissions_en#tab_id=practice_abstracts
- EU CAP Network. (n.d.). Manure upgrading for circular farming and healthy soils (MUCHS). https://eu-cap-network.ec.europa.eu/projects/manure-upgrading-circular-farming-and-healthy-soils-muchs_en
- EU CAP Network. (n.d.). Multifunctional smart livestock feeding and monitoring system. https://eu-cap-network.ec.europa.eu/projects/multifunctional-smart-livestock-feeding-and-monitoring-system_en#tab_id=practice_abstracts
- EU CAP Network. (n.d.). Precision agriculture investment promotes circular economy approaches for Polish pig farmer. https://eu-cap-network.ec.europa.eu/good-practice/precision-agriculture-investment-promotes-circular-economy-approaches-polish-pig_en#tab_id=overview
- EU CAP Network. (n.d.). Shared innovation space for sustainable productivity of grasslands in Europe. https://eu-cap-network.ec.europa.eu/projects/shared-innovation-space-sustainable-productivity-grasslands-europe_en#tab_id=practice_abstracts
- EU CAP Network. (n.d.). Testing precision fertilisation techniques for grassland management. https://eu-cap-network.ec.europa.eu/good-practice/testing-precision-fertilisation-techniques-grassland-management_en#tab_id=overview
- EU CAP Network. (n.d.). Valuing carbon in manure. https://eu-cap-network.ec.europa.eu/projects/valuing-carbon-manure_en
- EU CAP Network. (2024). Analytical work—Supporting the maintenance, restoration and establishment of agroforestry systems: An analysis of different approaches in selected EU Member States—Working document. https://eu-cap-network.ec.europa.eu/publications/analytical-work-supporting-maintenance-restoration-or-establishment-agroforestry_en#section--resources
- European Commission. (n.d.). Common agricultural policy. https://agriculture.ec.europa.eu/common-agricultural-policy_en
- European Commission. (n.d.). Enhancing of legumes growing in Europe through sustainable cropping for protein supply for food and feed. https://cordis.europa.eu/project/id/613781/reporting

- European Commission. (n.d.). Methane emissions. https://energy.ec.europa.eu/topics/carbon-management-and-fossil-fuels/methane-emissions_en
- European Commission. (n.d.). Nitrates. https://environment.ec.europa.eu/topics/water/nitrates_en
- European Commission. (n.d.). Water Framework Directive. https://environment.ec.europa.eu/topics/water/water-framework-directive_en
- European Commission. (2020). Farm to Fork strategy: For a fair, healthy and environmentally-friendly food system. https://food.ec.europa.eu/system/files/2020-05/f2f_action-plan_2020_strategy-info_en.pdf
- European Commission. (2025). EU agricultural outlook 2025–35: EU agriculture navigates challenges while embracing opportunities. https://agriculture.ec.europa.eu/media/news/eu-agricultural-outlook-2025-35-eu-agriculture-navigates-challenges-while-embracing-opportunities-2025-12-16_en
- European Commission. (2025). Organic rulebook fit for the future. https://agriculture.ec.europa.eu/media/news/organic-rulebook-fit-future-2025-12-17_en
- European Environment Agency. (n.d.). EEA greenhouse gases—Data viewer. https://www.eea.europa.eu/en/analysis/maps-and-charts/greenhouse-gases-viewer-data-viewers
- European Environment Agency. (2025). Greenhouse gas emissions from agriculture in Europe. https://www.eea.europa.eu/en/analysis/indicators/greenhouse-gas-emissions-from-agriculture
- European Parliament. (2023). Ensuring food security and long-term resilience of EU agriculture. European Parliamentary Research Service. https://www.europarl.europa.eu/RegData/etudes/ATAG/2023/747927/EPRS_ATA(2023)747927_EN.pdf
- Government of the Republic of Estonia. (2025). Estonia's national energy and climate plan (NECP) to the year 2030: Update. https://webgate.ec.europa.eu/circabc-ewpp/d/d/workspace/SpacesStore/927eb9c5-13cc-4c9a-85f3-b1b901145455/details
- Greenhouse Gas Protocol. (n.d.). Standards. https://ghgprotocol.org/standards
- Greenhouse Gas Protocol. (2026). Land sector and removals standard. https://ghgprotocol.org/land-sector-and-removals-standard
- Institute for Environmental Solutions. (n.d.). Restoring EU priority grasslands. https://www.vri.lv/en/2017/04/restoring-eu-priority-grasslands/
- LSM.lv. (2024). Almost 200 farmers' claims over storm damage filed in Latvia. https://eng.lsm.lv/article/society/environment/16.08.2024-almost-200-farmers-claims-over-storm-damage-filed-in-latvia.a565264/
- Metabolic. (n.d.). Circular agrifood: Potential of circular economy actions to reduce greenhouse gas emissions. https://www.metabolic.nl/publications/circular-agrifood/

- Ministry of Agriculture of the Republic of Latvia. (2023). Bioloģiskās lauksaimniecības attīstības rīcības plāns 2023.–2030. gadam [Action plan for the development of organic farming for 2023–2030]. https://www.zm.gov.lv/lv/media/12897/download
- Ministry of Energy of the Republic of Lithuania. (2024). Final updated national energy and climate action plan of the Republic of Lithuania for the period 2021–2030. https://webgate.ec.europa.eu/circabc-ewpp/d/d/workspace/SpacesStore/356eab7b-c371-400a-8d3b-e4cbc27e72de/details
- Notes from Poland. (2021). Over 100 districts around Poland raise alarm about “water blackout” amid heatwave. https://notesfrompoland.com/2021/06/22/over-100-districts-around-poland-raise-alarm-about-water-blackout-amid-heatwave/
- Saeima of the Republic of Latvia. (2025). Klimatnoturības un ekonomiskās ilgtspējas likums [Climate resilience and economic sustainability law]. Likumi.lv. https://likumi.lv/ta/id/364967-klimatnoturibas-un-ekonomiskas-ilgtspejas-likums
- Science Based Targets initiative. (2026). Forest, land, and agriculture (FLAG) target-setting tool [Excel workbook]. https://files.sciencebasedtargets.org/production/files/SBTiFLAGTool.xlsx
- Science Based Targets initiative. (2026). Forest, land and agriculture science-based target-setting guidance. https://files.sciencebasedtargets.org/production/files/SBTiFLAGGuidance.pdf
- Science Based Targets initiative. (2026). SBTi corporate net-zero standard: Version 2.0. https://sciencebasedtargets.org/corporate-net-zero-standard-v2
- Siegrist, M., Michel, F., & Hartmann, C. (2024). The shift from meat to plant-based proteins: Consumers and public policy. Current Opinion in Food Science, 58, Article 101182. https://doi.org/10.1016/j.cofs.2024.101182
- Sytas, A. (2025). Lithuania declares agriculture emergency after crops damaged by rain. Reuters. https://www.reuters.com/sustainability/climate-energy/lithuania-declares-agriculture-emergency-after-crops-damaged-by-rain-2025-08-13/
- United Nations Environment Programme Finance Initiative. (2023). Climate risks in the agriculture sector: Sectoral risk briefings—Insights for financial institutions. https://www.unepfi.org/wordpress/wp-content/uploads/2023/03/Agriculture-Sector-Risks-Briefing.pdf
- World Resources Institute. (2025). Grasslands are some of Earth’s most underrated ecosystems. https://www.wri.org/insights/grassland-benefits
- World Wildlife Fund. (n.d.). Driven to waste. https://wwf.panda.org/discover/our_focus/food_practice/food_loss_and_waste/driven_to_waste_global_food_loss_on_farms/