

# Carbon Footprint Management Plan

Minerva Foods Araguaina (Tocantins, Brazil)  
supply farms and operations | 2021

## Carbon Footprint Management Plan

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# Carbon Footprint Management Plan

*Minerva Foods – Brazil 2021*

The present Carbon Footprint Management (CFM) Plan sets out Minerva Foods commitment to measure and monitor its greenhouse gases (GHG) emissions of five beef supply farms and one slaughterhouse located in Araguaina, state of Tocantins (Brazil), focusing on the continuously reducing its GHG emissions to reduce the negative impacts of climate change. The CFM plan also helps the organization to protect and enhance future business growth and value creation.

This plan contains GHG emissions reduction targets and an action plan for achieving reductions over time. Furthermore, the CFM plan evaluates the quality of the organisation's carbon footprint efforts relating to data collection and calculation methods, data sources, processes, and activities that contribute to material emissions, as well as any estimates or assumptions used in calculations. Data quality assessments also indicate areas for improvement over time.

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# Definitions

<b>GHG</b>	<b>Greenhouse gases</b>
<b>CO<sub>2</sub></b>	<b>Carbon dioxide</b>
<b>CO<sub>2</sub>e</b>	<b>Carbon dioxide equivalent</b>
<b>N<sub>2</sub>O</b>	<b>Nitrous oxide</b>
<b>CH<sub>4</sub></b>	<b>Methane</b>

## Company Background

Minerva Foods is one of South America's leading producers of high-quality beef and the largest beef exporter. The company also operates in the processing of beef, pork, and poultry, and the export of live cattle. The Company operates 25 cattle slaughtering plants, 10 located in Brazil, 5 in Paraguay, 3 in Uruguay, 5 in Argentina and 2 in Colombia, with a total slaughtering capacity of 26,180 head of cattle daily.

Additionally, Minerva owns a plant located in Brazil for processing proteins – Minerva Fine Foods – and two plants in Argentina, located in the cities of Rosario and Pilar, which constitute the Swift Argentina brand, with processing capacity of 162 and 55 ton/day, respectively. The company exports products to more than 100 countries on five continents through sixteen commercial offices, and operates 14 distribution centers, 9 of which are in Brazil, 1 in Paraguay, 1 in Colombia, 2 in Chile, and 1 in Argentina.

Minerva Foods is committed to the sustainable future of the planet's food supply, it is the Company's purpose. Also, sustainability is one of the Company's values and it is present on the corporate strategy, a differential and commercial attribute in all business segments.

Minerva Foods is committed to several initiatives that are connected to the national and international sustainability agenda. Some of these actions are: i) participation, since 2019, in the Global Roundtable for Sustainable Beef to discuss strategies for responsible meat production; ii) Emerging Markets Investor Alliance – group of investors focused on the discussion of Environmental, Social & Governance topics of value chains in emerging markets; iii) Sustainable Livestock Working Group – Minerva is part of the group's Board of Directors, which unites different sectors in a positive agenda for the development of sustainable livestock with balance between economic, social and environmental pillars; iv) Mesa Paraguaia de Carne Sostenible (MPCS) – the group seeks to unite the links in the meat production chain in favor of sustainability; v) Mesa de Ganadería Sostenible de Colombia – aims to support the structuring of public policies, programs and projects related to the development of sustainable livestock.

Minerva Foods' public commitment to the management of risks related to climate change has a direct impact on the management of the production chain, as well as on the operations at its industrial units. Efforts related to energy efficiency and the control of greenhouse gases are at the heart of the strategy and requirements of its shareholders, investors, customers and partners.

The Company monitors its GHG emissions through Annual Corporate Inventories of Greenhouse Gas Emissions, based on the methodology of the Brazilian GHG Protocol. The results guide actions that are periodically adjusted to reduce GHG emissions. In 2021, Minerva Foods won the Gold Seal in its Corporate Inventory of Greenhouse Gas Emissions in the Brazilian GHG Protocol Program, the ultimate recognition of the tool used to qualify and manage emissions.

In this context, Minerva Foods announced decisive action to combat climate change and protect ecosystems, with the launch of its sustainability strategy, committing to reduce the intensity of its emissions by 30% by 2030 (compared to the year 2020) and have 50% of its beef suppliers participating in the Renove Program, which supports the implementation of low-carbon emission practices in the supply chain. In addition, the company proposes to achieve net zero emissions, with efforts focused on achieving this goal by 2035, 15 years ahead of schedule in the Paris Agreement.

The first step is to account for and encourage actions to reduce GHG emissions from farms that supply cattle to Minerva Foods. In this sense, initiatives at the livestock property level are being evaluated and implemented in Uruguay, Brazil, Argentina, Colombia and Paraguay.

Brazil stands out on the world stage as one of the largest beef producers. The cattle herd reached 218,2 million head in 2020, according to information from the Brazilian Institute of Geography and Statistics (IBGE). Recent estimates for meat production point to 9,850 thousand metric tons (Carcass Weight Equivalent) in 2022, placing Brazil in second place in the world meat production ranking, approximately 30% lower than the production of the United States - the world's largest producer.

Although livestock is an important sector in GHG emissions, it is also a strategic sector for the reduction and removal of these gases, through improvements in management, implementation of integrated systems and training of farmers and technicians. In this way, livestock farming becomes an important system to mitigate climate change.

## 1. Corporate Climate Policy Template

**September 2022**

Minerva Foods Araguaina (Tocantins, Brazil) takes responsibility for our business practices and the GHG emissions resulting from our activities. This responsibility will be carried out through the following guidelines:

- Minerva Foods Araguaina will demonstrate a high level of commitment and adopt best practices towards climate change mitigation.
- Minerva Foods Araguaina will work to reduce its annual GHG emissions level by avoiding unnecessary emissions, improving energy efficiency, and maintaining climate responsible business practices across its value chain – hereby improving our corporate beef carbon footprint.
- Minerva Foods Araguaina will ensure that related business policies, such as procurement and travel policies, are aligned with intentions described in this policy statement.
- Minerva Foods Araguaina will identify and act upon areas and practices where reasonable investments can result in significant GHG emission reductions. These shall be described in this carbon footprint management plan.
- Minerva Foods Araguaina will continue its annual monitoring and reporting of GHG emissions. Monitoring, Documentation, and Reporting shall be complete, consistent, accurate, relevant, and transparent, and comply with Preferred by Nature's Carbon Footprint Management Standard.
- Minerva Foods Araguaina will communicate consistently and transparently about our climate policy, reduction targets and plans, and achievements.
- Minerva Foods Araguaina will ensure that any carbon credits used to offset unavoidable or non-reducible GHG emissions come from credible, sustainable, and additional projects.
- Minerva Foods Araguaina will work towards carbon neutrality by 2035 through a combination of emissions reductions and offsetting initiatives.
- Minerva Foods Araguaina will demonstrate efforts to encourage business partners and clients to also adopt climate-friendly business, production, and consumption behaviours and practices.

*[CEO name and signature ]*

## 2. CFM Overview and Approach

The following outlines the focus of our carbon footprint along with relevant processes and quality management measures related to our plan.

- i. **Subject of analysis:** Beef cattle production and industrial operations.
- ii. **Justification of base year:** The baseline of emissions from livestock production, farm level, covered the period between **January to December 2021**. In industrial operations (refrigerator in Araguaina, TO) the emissions of scopes 1, 2 and 3 were also accounted for the **base year 2021 (from January to December)**.
- iii. **Staff responsibilities:** Assure that the assessment consistently and accurately reflects the greenhouse gas emissions and removals from the assessed production system. Ensure the completeness of the approach to the scope of the study in line with the reality of the field, including all emission sources identified in the system. Finally, report the results obtained in a transparent and responsible manner. Therefore, the dynamics of the work were divided between Minerva Foods Araguaina and Imaflora.

***The accounting of GHG emissions from livestock:*** Minerva Foods was responsible for collecting specific information about livestock production on the farms due to the fact that it maintains direct contact with its suppliers. On the other hand, the Imaflora team was responsible for processing the information from the evaluated farms and applying the calculation method recommended by the IPCC and GHG Protocol.

The Imaflora is a Brazilian NGO, founded in 1995, a time when concerns about preserving the environment and better ways of using nature's resources began to take prominence throughout the world.

***The accounting of GHG emissions from industrial operations:*** Minerva Foods Araguaina was responsible for the operational data collection from GHG emissions sources and input in the 'Climas' software to calculate the emissions for scopes 1, 2 e 3. The calculation had the support of a Brazilian consulting company (WayCarbon). IMAFLORA assisted in the process of understanding this information and inclusion of this information in this plan.

- iv. **Staff training:** The survey of information from the farms and industrial operations and the accounting for the results of GHG emissions were carried out by a team specifically trained to minimize errors and attain accurate results. The Minerva Foods team is trained on a regular



basis and additionally offers training to suppliers up to 3 times a year to encourage good practices in agricultural activities.

v. **Documentation:** The information relevant to the assessed farm was obtained through forms and the results accounted for in calculators, both developed in Microsoft Excel by Imaflora. Additionally, to the industrial operations, scopes 1, 2 and 3 GHG emission are managed (data collection and calculation) by the software 'Climas', and results are publicly disclosed on Minerva Foods' website and Sustainability Report.

vi. **Data collection: *For the accounting of GHG emissions from livestock*,** the selection of farms and survey of information about the production system were carried out jointly between Minerva Foods and Imaflora. The farmers, supported by trained technicians designated by Minerva Foods reported the relevant information on cattle-raising activity for the period by filling out predefined forms. Thus, information was reported on area occupation, activities and production systems, herd breed, stocking rate, manure management system, pasture maintenance, average number of animals by age, sex and production system, fuel and electricity consumption, quantity of fertilizers, among other relevant information for accounting GHG emissions and removals in livestock. The information was compiled in the calculation tool developed by Imaflora, which is aligned with the methodology of the GHG Protocol for Agriculture and Livestock (WRI, 2015) and Guidelines for National Inventories of Greenhouse Gases (IPCC, 2019 Refinement of the 2006 Guidelines).

***The accounting of GHG emissions from industrial operations*,** all operational data from GHG emissions sources for scopes 1 and 2 (and recently, for Scope 3) are inputted to the 'Climas' software on a monthly basis so the company is able to manage its emissions.

vii. **Calculation tools: *For the accounting of GHG emissions from livestock*,** the calculation tool was specially developed to meet the approach contemplated in the assessment by IMAFLORA. Therefore, we opted for a common and easy platform to be replicated and updated among involved. The proposed accounting method involved the most relevant and recent data available by international protocols (IPCC, GHG Protocol/ WRI, Ecoinvent, among others). It is important to emphasize that, the calculation tool was verified by an outsourced company specifically contracted to evaluate and approve of the applied methodology.

***The accounting of GHG emissions from industrial operations*,** for scopes 1 and 2 GHG emissions calculation, Minerva Foods uses a software developed by WayCarbon (Climas), which contains a database of the most current emission factors available for each type of

emission source (e.g., the Brazilian GHG Protocol Program for Brazil and, when not available, internationally accepted references such as the GHG Protocol, IPCC, EPA and DEFRA).

- viii. **Performance monitoring:** An internal audit will be carried out annually to recalculate and monitor GHG emissions from beef cattle production, focusing on improving production in the field and also on the quality of information and updating the calculation method.
- ix. **Offsetting procedures:** Offset will be used to compensate part of the GHG emissions in compliance with the agenda of the Renove Program.
- x. **Emissions avoided:** Since 2020, the Company buys I-RECs (International Renewable Energy Certificated) for all its energy consumption, avoiding GHG emissions from non-renewable energy sources. Thus, scope 2 emissions are zero by the market-based approach.
- xi. **Emission not included:** Full compliance with Scope 3 categories, such as: Purchased goods and services, Fuel and energy related activities (not included in scope 1 or scope 2), downstream transportation and distribution (complete) and other Scope 3 categories of the corporate inventory. It is important to emphasize that all emitting sources directly related to the processing of food products and co-products were considered.

### 3. Carbon Footprint Results

#### 3.1. Base year carbon footprint and boundaries

##### 3.1.1. Product Carbon Footprint

###### 3.1.1.1. Farms

Greenhouse gas emissions were accounted for in beef cattle production in different production systems (extensive, extensive with supplementation and confinement), on five farms located in Tocantins (BR). The assessment was prepared using the operational control approach, including emissions from 100% of livestock-related activities.

The farms precursor GHG activities/sources are: i) enteric fermentation; ii) management of liquid and solid manure; iii) combustion in mobile sources for pasture maintenance; iv) application of synthetic fertilizers and/or organic compounds for pasture maintenance; v) decomposition of agricultural waste and, iv) land use change. Finally, background emissions were accounted of inputs used for pasture maintenance, synthetic fertilizers and herbicides.

It is important to note that these emissions occur on the cattle-producing farms that supply Minerva Foods' facilities in Araguaína, Tocantins (BR). Therefore, they are not directly controlled by the company. Thus, they can be defined as scope 3 emissions.

The base year for this CFM plan, calculated in **January to December 2021** amounts to:

**Total (Absolute) GHG emissions:** 28,338.27 tCO<sub>2</sub>e (*for the 5 farms evaluated*)

**Emissions by Scope:** It is important to remember that emissions when allocated in **Scope 3** are under the perspective of **Minerva Foods Araguaína** (Tocantins, Brazil). In this case, the emissions are shown in the table in follow.

FARM	Scope 1	Scope 2	Scope 3	Biogenic if known <sup>1</sup>
FARM 1	0 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e	9,340.28 tCO <sub>2</sub> e	3.34 tCO <sub>2</sub> e
FARM 2	0 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e	3,701.07 tCO <sub>2</sub> e	1.37 tCO <sub>2</sub> e
FARM 3	0 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e	5,618.96 tCO <sub>2</sub> e	12.53 tCO <sub>2</sub> e
FARM 4	0 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e	4,045.76 tCO <sub>2</sub> e	0.75 tCO <sub>2</sub> e
FARM 5	0 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e	5,632.20 tCO <sub>2</sub> e	9.19 tCO <sub>2</sub> e
TOTAL	0 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e	28,338.27 tCO <sub>2</sub> e	27.18 tCO <sub>2</sub> e

<sup>1</sup> See Section 3 of Standard for more details on reporting of biogenic emissions and removals.

From the *farms' perspective*, GHG emissions are associated with **Scopes 1, 2 and 3** as shown in the table below.

FARM	Scope 1	Scope 2	Scope 3	Biogenic if known <sup>2</sup>
FARM 1	9,265.68 tCO <sub>2</sub> e	4.94 tCO <sub>2</sub> e	69.66 tCO <sub>2</sub> e	3.34 tCO <sub>2</sub> e
FARM 2	3,699.95 tCO <sub>2</sub> e	1.12 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e	1.37 tCO <sub>2</sub> e
FARM 3	3,612.53 tCO <sub>2</sub> e	8.17 tCO <sub>2</sub> e	1,998.26 tCO <sub>2</sub> e	12.53 tCO <sub>2</sub> e
FARM 4	4,044.85 tCO <sub>2</sub> e	0.91 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e	0.75 tCO <sub>2</sub> e
FARM 5	5,617.44 tCO <sub>2</sub> e	3.15 tCO <sub>2</sub> e	11.61 tCO <sub>2</sub> e	9.19 tCO <sub>2</sub> e
TOTAL	26,240.44 tCO <sub>2</sub> e	18.29tCO <sub>2</sub> e	2,079.53 tCO <sub>2</sub> e	27.18 tCO <sub>2</sub> e

The base year for our CFM plan, calculated in **January to December 2021** amounts to:

**Intensity (Ratio) terms:** 8.7650 tCO<sub>2</sub>e t<sup>-1</sup><sub>animal productivity</sub>

- CO<sub>2</sub> equivalent emissions per tons animal weight gain, in the evaluated period, 2021.
- Average of the five farms evaluated.

**Emissions by life cycle stage:** From the *farms' perspective*, table below.

Emissions by raw material acquisition	Emissions by production
105.11 tCO <sub>2</sub> e	28,233.16 tCO <sub>2</sub> e
0.37% of total	99.63% of total

Additionally, **Emissions by raw material acquisition** are emissions from fertilizer and herbicides production and **Emissions by production** are emissions that occurred during the production of beef cattle at agricultural properties. Emissions from **fertilization** and the use of **pesticides** (this case, herbicides) did not occur on all farms in the year evaluated, as in two of them the production took place only on pasture and without the use of inputs. Also, Farm 4 is part of the organic products protocol, so it does not use synthetic inputs in its production.

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<sup>2</sup> See Section 3 of Standard for more details on reporting of biogenic emissions and removals.

### 3.1.1.2. Processing facilities

Emissions of greenhouse gases were accounted for in the beef production at one of Minerva Foods' slaughterhouses located in Araguaina (Tocantins, Brazil) in 2021. The inventory takes an operational control approach and consolidates scopes 1, 2 and 3 emissions.

The facilities precursor GHG activities/sources are: i) combustive consumption for stationary combustion; ii) combustive consumption for mobile combustion; iii) waste and wastewater treatment; iv) fugitive emission; v) agricultural activities (enteric fermentation from the cattle and management of liquid and solid manure, onsite at facility); vi) land use change; vii) electrical energy consumption; viii) upstream transportation and distribution (cattle transport); ix) downstream transportation and distribution; x) purchased goods and services and xi) transport of employees.

The emission values include the slaughterhouse activities plus the leather industry. The base year for this CFM plan for scopes 1, 2 and 3 is 2021 (considering emissions from January to December), emissions amount to:

**Total (Absolute) GHG emissions: 15,320.77 tCO<sub>2</sub>e** (Scope 1 and Scope 2: *location-based approach*)  
**13,291.70 tCO<sub>2</sub>e** (Scope 1 and Scope 2: *market-based approach*)

#### Total Emissions by Scope - Location-based approach:

Processing facilities	Scope 1	Scope 2 (Location-based)	Scope 3	Biogenic if known <sup>3</sup>
Araguaina (TO; BR)	10,633.11 tCO <sub>2</sub> e	2,029.07 tCO <sub>2</sub> e	2,658.59 tCO <sub>2</sub> e	18,076.01 tCO <sub>2</sub> e
TOTAL	10,633.11 tCO <sub>2</sub> e	2,029.07 tCO <sub>2</sub> e	2,658.59 tCO <sub>2</sub> e	18,076.01 tCO <sub>2</sub> e

#### Total Emissions by Scope - Market-based approach (considering the I-RECs acquisition):

Processing facilities	Scope 1	Scope 2 (Market-based)	Scope 3	Biogenic if known <sup>4</sup>
Araguaina (TO; BR)	10,633.11 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e	2,658.59 tCO <sub>2</sub> e	18,076.01 tCO <sub>2</sub> e
TOTAL	10,633.11 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e	2,658.59 tCO <sub>2</sub> e	18,076.01 tCO <sub>2</sub> e

<sup>3</sup> See Section 3 of Standard for more details on reporting of biogenic emissions and removals.

<sup>4</sup> See Section 3 of Standard for more details on reporting of biogenic emissions and removals.

Emissions associated with meat processing at the Slaughterhouse (table above) were allocated (mass-based) to the target product of this certification, **meat without bone**. Thus, the value presented below refers to the intensity of emissions from **meat without bone**.

Note that, the base year for this CFM plan for scopes 1, 2 and 3 is 2021 (considering emissions from January to December), the total emissions accounted for **meat without bone** in 2021 were 6,645.85 tCO<sub>2</sub>e.

**Intensity (Ratio) terms:** 0.2171 tCO<sub>2</sub>e t<sup>-1</sup><sub>meat without bone</sub> (CO<sub>2</sub> equivalent emissions per tons of finished product, **meat without bone**, target of this evaluation).

Additionally, GHG emissions were evaluated in the **leather production chain** (co-product generated in Slaughterhouse). Thus, Slaughterhouse emissions were allocated (mass-based) to the representativeness of leather in the products and co-products at the Araguaina unit (Tocantins, Brazil).

In Slaughterhouse activities related to **leather treatment** are minimal and treatment is carried out in third-party facilities. Therefore, three other activities related to the leather chain were included: i) transport of leather between Slaughterhouse and Tannery; ii) upstream emissions from the product used for skin treatment and iii) direct emissions from the Tannery related to skin treatment.

The total emissions accounted for **leather** in 2021 were 1,462.09 tCO<sub>2</sub>e

**Intensity (Ratio) terms:** 0.2097 tCO<sub>2</sub>e t<sup>-1</sup><sub>leather</sub> (CO<sub>2</sub> equivalent emissions per tons of finished product, **leather**, target of this evaluation).

**(Important)** The information related to the quantity of products and co-products processed at Araguaina unit of Minerva Foods was restricted to the evaluation team, they are important information pertinent to the company.

3.1.1.3 *Minerva Foods Araguaina: Estimated Total Emissions (farms and processing facilities)*

Below are the emissions associated with scopes 1, 2 and 3, within the scope of the Slaughterhouse.

**Total Emissions by Scope (Slaughterhouse Location-based approach):**

Unit	Scope 1	Scope 2 (Location-based)	Scope 3
<b>(Important)</b> Emissions presented for the farms are associated with the total meat produced in 2021, on the respective farms:			
FARM 1	0 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e	9,340.28 tCO <sub>2</sub> e
FARM 2	0 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e	3,701.07 tCO <sub>2</sub> e
FARM 3	0 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e	5,618.96 tCO <sub>2</sub> e
FARM 4	0 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e	4,045.76 tCO <sub>2</sub> e
FARM 5	0 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e	5,632.20 tCO <sub>2</sub> e
<b>(Important)</b> Emissions presented for Slaughterhouse correspond to total animals slaughtered in 2021			
Araguaina Slaughterhouse	10,633.11 tCO <sub>2</sub> e	2,029.07 tCO <sub>2</sub> e	2,658.59 tCO <sub>2</sub> e

**Total Emissions by Scope (Slaughterhouse Market-based approach):**

Unit	Scope 1	Scope 2 (Market-based)	Scope 3
<b>(Important)</b> Emissions presented for the farms are associated with the total meat produced in 2021, on the respective farms:			
FARM 1	0 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e	9,340.28 tCO <sub>2</sub> e
FARM 2	0 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e	3,701.07 tCO <sub>2</sub> e
FARM 3	0 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e	5,618.96 tCO <sub>2</sub> e
FARM 4	0 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e	4,045.76 tCO <sub>2</sub> e
FARM 5	0 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e	5,632.20 tCO <sub>2</sub> e
<b>(Important)</b> Emissions presented for Slaughterhouse correspond to total animals slaughtered in 2021			
Araguaina Slaughterhouse	10,633.11 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e	2,658.59 tCO <sub>2</sub> e

Estimated carbon intensity, including livestock production, transport (Farm - Slaughterhouse) and Minerva Foods Slaughterhouse in Araguaina, for **meat without bone** and **leather** (For **leather**, the following were considered: carbon intensity per average live animal weight, allocations mass-based of products and co-products processing and 98% of animal use):

**Intensity (Ratio) terms:** 8.9821 tCO<sub>2</sub>e t<sup>-1</sup><sub>meat without bone</sub> (CO<sub>2</sub> equivalent emissions per tons of finished product, **meat without bone**, target of this evaluation).

**Intensity (Ratio) terms:** 0.8199 tCO<sub>2</sub>e t<sup>-1</sup><sub>leather</sub> (CO<sub>2</sub> equivalent emissions per tons of finished product, **leather**, target of this evaluation).

### 3.2. Carbon Footprint emissions over time

#### 3.2.1. Farms

The carbon footprint will be monitored annually and compared with the carbon footprint of the base year. The table below shows the reduction rates and absolute values expected by the company.

	<b>BASE YEAR</b>	<b>YEAR 1</b>	<b>YEAR 2</b>	<b>YEAR 3</b>
<b>Measure</b>	Jan-Dec 2021	Jan-Dec 2025	Jan-Dec 2027	Jan-Dec 2030
	----- tCO <sub>2</sub> e -----			
<b>Absolute</b>	28,338.27	27,771.50	27,216.07	26,671.75
<i>% reductions</i>		2%	2%	2%
	----- tCO <sub>2</sub> e per animal productivity -----			
<b>Intensity</b>	8.7650	8.5897	8.4179	8.2495
<i>% reductions</i>		2%	2%	2%

#### 3.2.2. Processing facilities

Minerva Foods' 2030 emission intensity reduction target for scopes 1, 2 and 3 by 30% has sub-targets as shown in the table below:

	<b>BASE YEAR</b>	<b>YEAR</b>	<b>YEAR</b>	<b>YEAR</b>
<b>Measure</b>	Jan-Dec 2020	Jan-Dec 2026	Jan-Dec 2028	Jan-Dec 2030
	----- tCO <sub>2</sub> e per tons of finished product -----			
<b>Intensity</b>	0.2181	0.1963	0.1767	0.1590
<i>% reductions</i>		10%	10%	10%



#### 4. GHG emissions reductions plan

Minerva Foods Araguaína is committed to lowering its climate impact by setting emissions reduction targets. These targets represent an important tool for driving GHG emissions reductions across the organisation and its value chain, below.

- **Agricultural inputs:** The use of urea for pasture fertilization is very common. In the field, urea directly emits CO<sub>2</sub> and N<sub>2</sub>O into the atmosphere and has higher levels of indirect emissions by volatilization. To maintain the nitrogen inputs in the soil and consequently its production in fresh matter, an alternative is to replace the nitrogen source, that is, instead of applying urea, use ammonium sulfate, for example. In this case, replacing urea with ammonium sulfate would reduce GHG emissions in the field (scope 1 from the supplier's perspective) and could also reduce emissions associated with fertilizer production (scope 3). In the farms evaluated in Tocantins (BR), the urea fertilizer was not used, both in pasture and in crops for animal supplementation. The decision of producers not to use urea is something that needs to be maintained. Therefore, technical guidelines from the Minerva Foods team on the farms should comment on the topic. However, producers made use of other sources of mineral fertilizers. Thus, the substitution of 100% mineral fertilizers for organic-mineral fertilizers (mineral part and organic part) has proven to reduce GHG emissions, maintaining the same productivity levels in the field. This is because mineral fertilizers are associated with large amounts of emissions at production plant and waterway transport (scope 3 emissions).
- **Emission avoided:** Since 2020, the Company buys I-RECs (International Renewable Energy Certificated) for all its energy consumption, avoiding emissions from non-renewable energy sources. Minerva Foods Araguaína also studies implementing solar energy panels in the Company's facilities to generate clean energy and reduce the consumption from the GRID.
- **Input data quality:** In order to promote results closer to reality, strategies will be drawn up to reduce the uncertainties of the input data in the accounting of the sector's emissions as a function of production. The essential information for the carbon footprint, use of inputs in livestock management and bovine weight gain will be more rigorously evaluated to more assertively portray emissions from livestock activity. Data from operations will be continued to be accounted for in the 'Climas' software with the support of a consultancy firm (WayCarbon) to guarantee the accuracy of the calculation of emissions for scopes 1 and 2. Also the Company's Corporate Inventory of Greenhouse Gas Emissions will be audited by a third-party organization following the criteria of the Brazilian GHG Protocol Program.

- **Carbon Removal:** Include carbon removals through soil carbon sequestration obtained from improved grassland management in the scope of the assessment. The target is to identify and convert the pasture model with some level of degradation to better land management by 5% by 2025.

In the table below, the targets are presented in the form of topics:

Target	
1	Control of inputs used in the field with possible substitutions
2	Keep Minerva Foods' energy matrix clean through the acquisition of I-RECs (International Renewable Energy Certificated)
3	Improvement of data used in accounting for GHG emissions as a function of production
4	Broader scope of the study, including GHG removals from pasture improvement

## 5. Offset Projects and Carbon Credits

### 5.1. Carbon Offset targets

Minerva Foods Araguaina is committed to offsetting, at this first moment, a portion of our remaining GHG emissions. Carbon credits represent a path to mitigate global emissions outside the organization and the value chain, providing an opportunity to invest in projects that encourage sustainable agriculture in other parts of the world.

The carbon credits will be purchased from accredited suppliers and will follow the offsetting principles set out in Annex IV of the NEPCon CFM.

### 5.2. Carbon Neutrality

The Minerva Foods Araguaina announced decisive action to combat climate change and protect ecosystems, with the launch of its sustainability strategy, committing to reduce the intensity of its emissions by 30% by 2030 (compared to the year 2020) and have 50% of its beef suppliers participating in the ***Renove Program***, which supports the implementation of low-carbon practices in the supply chain.

## 6. Data Quality

### 6.1. Data Quality Assessment

Minerva Foods Araguaia collected real and accurate data from the farms. It is important to note that these emissions occur on farms that produce cattle for slaughter at the Minerva unit in Araguaína, Tocantins (BR). Therefore, its emissions are not directly controlled or under the responsibility of the company. Within the scope of the slaughterhouse, they are defined as Scope 3 emissions. Thus, the following were included in the accounting of emissions from livestock farms: liters of fuel consumed, kilogram of fertilizer applied to pasture, kilogram of fertilizer applied in agricultural production areas for animal nutrition, amount of herbicides, number, average monthly or annual livestock weight (depending on availability of farm information), monthly weight gain, etc. **Quality indicators at this early stage.**

Also, Minerva Foods, after its first certification, obtained for the units in Uruguay, **assumed a commitment to continuous improvement**, anticipated and expanded its scope of evaluation to the Araguaia unit. Previously, only emissions associated with scopes 1 and 2 were considered. But in 2021 the scope increased and included other categories associated with scope 3 of the GHG Protocol's approach to corporate inventories. In this way, the company increased its scope of responsibilities considering indirect emissions, not directly related to the processing of products and co-products, but by including these emissions in the products targeted by this assessment.

### 6.2. Data Quality Improvement Plan

The Company is committed to improving its data collection methods and sources to reflect emission totals and reductions that are accurate and relevant. Based on this, the organisation is taking ongoing measures to enhance the quality of data by incorporating industry best practices, using the most recent resources, and prioritising the use of primary data. The following demonstrates our actions to reduce data uncertainty and quality issues in the future.

- Aggregate a greater number of farms participating in the study, producing more representative average values.
- Prioritize agricultural properties with management system implanted. Requesting inputs reports, when possible, from inputs applications in livestock and pasture management. Also, complete output reports, that is, of animal sales.

- For agricultural properties where management systems are not implemented, employee training will be promoted and optimized forms will be developed to collect primary information in accordance with the inputs and outputs evidenced by the purchase and sale invoices.
- The calculation of GHG emissions will be internally verified to minimize errors, from typing to checking the methods provided for in international protocols for accounting for emissions.

## 7. Climate Communications, claims, and labels

### 7.1. Public reporting

Minerva Foods Araguaina communicates the results of its carbon footprint as well as its progress on GHG emissions reductions on an annual basis. The information is available in the following documents.

Report Description	Name and Date	Content / Purpose	Link
Carbon on Track Plataform	Carbon on Track Plataform – IMAFLORA	Communicate the results and advances of Minerva’s carbon estimates within a friendly and didactic platform developed by Imaflora	<a href="https://carbonontrack.imaflora.org/home/">https://carbonontrack.imaflora.org/home/</a>
Sustainability report	Sustainability Report 2021 Minerva Foods	The report contents provide a comprehensive account of the environmental, social and economic performance of the Company’s plants, offices and broader supply chain, and the ways that Minerva Foods has applied industry best practices in managing sustainability. As in previous years, the report has been prepared in accordance with the Core option under the Global Reporting Initiative (GRI) guidelines.	<a href="https://www.minervafoods.com/rs-2021/index.html">https://www.minervafoods.com/rs-2021/index.html</a>



### 7.2. Claims and Labels

Minerva Foods Araguaina uses CFM claims and labels to demonstrate our climate efforts to stakeholders. This document serves as supporting evidence to stakeholders wishing to validate the appropriateness of our claims and label use. In particular, we validate that the information supporting our claims and labels are clearly accessible, do not misrepresent any emissions or results, and appropriately identify the parts of the business or product under investigation; carbon footprint results as well as reductions and offsets achieved; date of verification and approvals.

The following demonstrates an overview of our verification scope(s) and related claims and labels.

**Date of verification approval:**

**Date of Label and/or claim use approval:**

	CFM Label	CFM claim	Evidence
<b>Product</b>			
Measuring CO <sub>2</sub>		Products with carbon footprint measured	
Reducing CO <sub>2</sub>	N/A	N/A	N/A
CO <sub>2</sub> Neutral		Products with carbon footprint measured and emissions offsee.	