



BEWITAL agri

Climate report 2020

Quantification and reporting
of **Scope 1 & 2 greenhouse gas emissions**
in accordance with the Corporate Greenhouse Gas
Protocol

August 2021

Executive Summary

Greenhouse gases (GHGs) trap heat and increase the temperature on our planet. The resulting change in our climate is one of the defining issues of our time. BEWITAL agri acts: As a leading specialist in sustainable livestock nutrition and innovative specialty feeds, it is our declared goal to protect the environment in all our activities and to keep the negative impact on the environment as low as possible; from the selection of raw materials, over manufacturing, to the delivery of finished products to our customers. This enables us to provide the best possible support to agriculture in the pursuit of environmental protection and sustainability. The environmental impact of our business and production processes is constantly reviewed, assessed and, if necessary, optimized. For example, when purchasing new equipment, we give preference to environmentally compatible and energy-saving models. In our environmental protection efforts, we explicitly want to go beyond the minimum legal standard.

For BEWITAL agri, everything starts with transparency about our emissions. This document outlines our key motives for accounting for our greenhouse gas emissions. The project was prompted by the decision that, as a family-owned company, we want to live up to our own responsibility in reducing greenhouse gas emissions in order to safeguard the livelihood of future generations. Therefore, we are now publishing a climate report for the first time that quantifies the CO₂ footprint of our production processes in Südlohn-Oeding. As this is our first systematic climate report, we are initially still focusing exclusively on the mandatory information on Scope 1 and Scope 2 greenhouse gas emissions in accordance with the Corporate Greenhouse Gas Protocol for the 2020 reporting year, which begins on January 1st, 2020, and ends on December 31st, 2020. A future extension to Scope 3 emissions is currently under review.

This is our carbon footprint for the 2020 reporting year:

| GHG Protocol Scopes | Tons CO₂e in 2020 |
|----------------------------|-------------------------------------|
| Scope 1 | 107.93 |
| Scope 2 (location-based) | 1182.32 |
| Scope 2 (market-based) | 230.41 |

Introduction

Under the 2015 Paris Agreement, the world's governments committed to limit global temperature increases to well below 2 °C compared with pre-industrial levels and to continue efforts to limit warming to 1.5 °C. In 2018, the Intergovernmental Panel on Climate Change (IPCC) warned that global warming must not exceed 1.5 °C above pre-industrial temperatures to avoid catastrophic impacts of climate change. To achieve this, greenhouse gas (GHG) emissions must be halved by 2030 – and reduced to net zero by 2050.

Agriculture plays a crucial role in reducing GHG emissions. As a specialty feed manufacturer, it is our responsibility to contribute to sustainable livestock nutrition. For example, farmers can reduce ruminal methane production per kg of milk with the help of our rumen-protected feed fats. Yet, our responsibility commences much earlier and thus includes transparency about our own carbon footprint.

Understanding our own footprint is critical to navigating our path towards a sustainable future, engaging with internal and external partners and stakeholders, and taking appropriate action to further reduce our emissions. This document outlines our approach to accounting for greenhouse gas emissions. It describes the calculation boundaries, methodologies, assumptions, and key references used in preparing our emissions inventory. We use the internationally recognized Greenhouse Gas Protocol Corporate Standard and its additional guidance documents and calculation tools. The Greenhouse Gas (GHG) Protocol is a multi-stakeholder partnership of corporations, non-governmental organizations (NGOs), governments, and others launched by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). The GHG Protocol, which was launched in 1998, aims to develop internationally recognized standards for greenhouse gas accounting and reporting (e.g., ISO 14064) and to promote their global adoption.

The inventory presented in this document is the result of a recent GHG accounting exercise with the support of our partners at ELFIN Consulting GmbH, who helped us to identify the main emission sources and hotspots in our production processes and to identify first reduction and improvement potentials.

About BEWITAL agri in the context of climate change

BEWITAL agri is part of the BEWITAL group, which has been a reliable partner for its staff, customers, and suppliers for over 50 years. With its roots in the German 'Westmünsterland' region, the BEWITAL group is currently structured as three owner-run family firms: BEWITAL agri (livestock feed specialist), BEWITAL petfood (pet feed specialist) and the logistics company westrans.

At BEWITAL agri, we see modern livestock nutrition as a global challenge that we need to face. With our innovative specialist feeds and feed supplements for livestock, we provide answers to the ever-increasing demands on agriculture and the feed industry worldwide. BEWITAL agri has been committed to the sustainable rearing and healthy nutrition of livestock for more than 5 decades – in research, development, and application. With our specialty feeds, we offer solutions that are sustainably effective for our customers.

Nature is the foundation for our products. This corporate philosophy is reflected, for example, in our certified environmental management system according to DIN ISO 14001:2015. It is our goal to protect the environment in all activities and to keep the negative impact on the environment as low as possible. For this reason, we have decided to examine how we can make our production and administration site in Südlohn-Oeding climate neutral. The basis for this is the analysis of the corporate carbon footprint based on Scope 1 and 2 emissions in accordance with the Greenhouse Gas Protocol standard. For Scope 1, this includes direct emissions from combustion processes at stationary and mobile assets (e.g., production facilities and company vehicles), emissions of fugitive gases, and other direct emissions from processes that occur in our corporate facilities at the Südlohn-Oeding site. In addition, Scope 2 addresses those emissions that arise indirectly from the purchase of electricity, heating, cooling, and steam for our operations.

As a family-run company, we see it as our responsibility to safeguard the livelihood of future generations by avoiding, reducing and, if necessary, offsetting the emissions generated at our site in Südlohn-Oeding. In doing so, we want to present our results and our improvement strategy transparently and in accordance with recognized standards.

In addition to accounting for the corporate carbon footprint, evaluating the environmental impact of our products is also part of our efforts to protect the environment: Using the 'Product Environmental Footprint' (PEF), a standardized method developed by the European Commission to determine the environmental impacts of products, we have analyzed the influence of

BEWITAL agri's product portfolio on climate change, ecosystems, health, natural resources, and water. This enables us to identify and optimize 'hotspots' in the product value chain and to live up to our own high-quality standards for our products.

Organizational boundary

The definition of the organizational boundary is an important step in the GHG accounting of companies. This step determines which activities are included in the organizational boundary of the company and how the emissions from each activity are consolidated by the reporting company. As described in the GHG Protocol Corporate Standard, a company has three options for defining its organizational boundaries: (1) equity share, (2) financial control, and (3) operational control. BEWITAL agri has chosen the operational control approach for its emission inventory. Under the operational control approach, a company accounts for 100 percent of the GHG emissions under its operational control.

Methodology for quantifying and reporting GHG emissions

This report covers the following greenhouse gases: Carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). There were no fugitive emissions of hydrofluorocarbons (HFCs), or perfluorocarbons (PFCs) from leaks at refrigeration and air conditioning systems during the reporting year. Sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃) are not used in our processes (see glossary for typical applications of SF₆ and NF₃). Biogenic carbon dioxide emissions from the combustion or biodegradation of biomass also do not apply to our processes. The emission factors and Global Warming Potential (GWP) values used were taken from the official "Calculation Tools" of the Greenhouse Gas Protocol website. Only the emission factor used for the electricity mix in Germany (401 grams per kilowatt-hour in 2019) was taken from Statista (2021). To verify our GHG emission sources and the defined organizational boundaries, we apply the principles of the Greenhouse Gas Protocol Corporate Standard:

- **Relevance:** The boundaries of GHG emissions accounting and reporting should appropriately reflect the company's emissions and serve the company's business objectives and decision-making needs both internally and externally.

- **Completeness:** Emission sources within established organizational and operational boundaries should be reported.
- **Consistency:** To ensure that emission data can be tracked and compared over time within the reporting entity, a consistent application of accounting practices and quantification methods is necessary.
- **Transparency:** All information about the processes, assumptions and boundaries of the inventory should be transparent and disclosed.
- **Accuracy:** Data collection should be as accurate as possible, and uncertainties should be avoided as much as possible.

For reasons of insufficient external data availability, we have excluded Scope 3 emissions for the 2020 reporting year, for now. To systematically account for Scope 3 emissions in the future, we are currently examining ways to comply with the above-mentioned principles of the GHG Protocol for Scope 3.

For BEWITAL agri, the market-based method of the GHG Protocol most reliably reflects the specification of emission values for Scope 2 emissions and the success of emission reduction measures (in particular, through our purchase of 100 percent climate-neutral electricity). For the calculations of total greenhouse gas emissions, we have therefore used the emission volumes calculated according to this method:

| GHG Protocol Scopes | Tons CO₂e in 2020 |
|--|-------------------------------------|
| Scope 1 | 107.93 |
| Scope 2 (location-based) | 1182.32 |
| Scope 2 (market-based) | 230.41 |
| Total GHG emissions (Scope 1 & 2 according to the market-based method) | 338.34 |

Scope 1

Scope 1 includes GHG emissions from activities owned or controlled by the reporting company. Scope 1 emission sources vary from company to company, depending on business model and sector.

GHG Protocol Scopes Tons CO₂e in 2020

Scope 1 107.93

According to the GHG Protocol, our Scope 1 emissions include the following activities:

- **Direct emissions from combustion processes of mobile assets:** These emissions are generated at BEWITAL agri through the combustion of fuels in company vehicles. This includes the liquid gas consumption of our forklifts as well as the diesel consumption of our company vehicles.

Scope 2

Scope 2 emissions are indirect emissions from the generation of purchased and consumed electricity, steam, heating, and cooling. According to 'GHG Protocol Scope 2 Guidance,' an organization is required to report two different values for Scope 2: A location-based value and a market-based value.

The **location-based method** reflects the average GHG emissions intensity of grids on which energy consumption occurs, using mostly grid-average emission factor data. The **market-based method** reflects emissions from electricity that an organization has purposefully chosen. It derives emission factors from contractual instruments. These include all types of contracts between two parties for the sale and purchase of energy that may be bundled with certain characteristics of energy production (e.g., certificates confirming the origin of electricity from renewable sources).

GHG Protocol Scopes Tons CO₂e in 2020

Scope 2 (location-based) 1182.32

Scope 2 (market-based) 230.41

According to the GHG Protocol, our Scope 2 emissions include the following activities:

- **Indirect emissions from district heating and cooling energy:** These emissions result from our purchase of district heating (based on natural gas from a standard supplier as well as from a supplier with combined heat and power plants; CHPs) using natural gas, and cooling agents (liquid nitrogen).
- **Indirect emissions from purchased electricity:** These emissions result from the amount of electricity we purchase and consume during the electricity generation process at the supplier. We purchase 100 percent climate-neutral electricity (incl. upstream chains; certified and audited). Our electricity consumption is primarily generated in our administrative buildings, during production, and in warehousing and order picking. **According to the market-based method, our indirect emissions from purchased electricity are therefore zero.** Comparing the location-based and market-based scope 2 emissions shows that we have **already avoided 80 percent of site-based scope 2 emissions (=951.91 tons CO₂e) in 2020** by sourcing climate-neutral electricity.

Similarly, the comparison of total GHG emissions (scope 1 & 2) between location-based method (=1290.25 tons CO₂e) and market-based method (=338.34 tons CO₂e) shows that **we were able to avoid 74 percent of our total CO₂ emissions in 2020** by sourcing carbon neutral electricity.

Relative climate key performance indicators

Relative climate key performance indicators (KPIs) define greenhouse gas emissions in the context of an organization-specific metric. Many organizations track their environmental performance using relative metrics, often referred to as 'normalized' metrics. When combined with an organization's absolute GHG emissions, listed above, relative climate KPIs can help comparing the organization's efficiency with other organizations.

| Climate KPIs (market-based) | Tons CO ₂ e in 2020 |
|--|---|
| CO ₂ intensity (Tons CO ₂ e per 1 million Euro sales) | 7.240 338.34 Tons CO ₂ e ÷ 46.735 million Euro sales in 2020 |

Specific CO₂ emissions
(Tons CO₂e per ton production volume) **0.009**
338.34 tons CO₂e ÷ 37 075 tons production
volume in 2020

- **CO₂ intensity (how climate-friendly is my business?):** This indicator shows the ability to reduce CO₂ emissions without having to restrict sales growth (or the ability to increase sales while maintaining CO₂ emissions). High values indicate high CO₂ emissions, which were necessary to generate the total sales within one year.
- **Specific CO₂ emissions (how climate friendly are my products?):** The specific CO₂ emissions of product manufacturing indicate how much GHG emissions are generated on average during the production of a certain product volume or quantity. Strictly speaking, this is not the same as the 'product carbon footprint,' since we did not take the entire life cycle of a product into account here.

Management approach

A greenhouse gas inventory provides a high-level overview of a company's total emissions. A high-quality inventory is of utmost importance for the accounting of emissions. For this reason, BEWITAL agri strives to have solid processes and clear roles for emissions management. For this purpose, an environmental and energy team consisting of top-management, environmental management officer and energy management officer has been appointed to ensure that the inventory is up to date. Furthermore, this team works to continuously improve data accuracy and completeness. GHG emissions are reported to various departments within the company to improve the management of the carbon footprint and ensure the company's climate goals are met. We are currently checking and discussing the integration of the GHG footprint as part of our standard annual reporting process.

Outlook and next steps

We have not yet offset any emissions from the 2020 reporting year. We are currently still focusing on reducing our GHG emissions wherever possible. To this end, we are investing in long-term sustainability measures, such as the construction of innovative and highly energy-efficient spray tower facilities for our production processes. In addition to our already climate-neutral electricity procurement, we are also investigating the possibility of purchasing climate-neutral liquid nitrogen.

With this first greenhouse gas inventory of our Scope 1 & 2 emissions, we have laid the foundation for a systematic and annual climate reporting. In the coming years, we intend to automate certain steps in the process and examine the extent to which it will be possible to include upstream and downstream Scope 3 emissions. In a continuous improvement process, we strive to regularly update our activity data and emission factors (from literature and recognized tools, such as the GHG Protocol's Excel tools) and to integrate even more detailed and accurate emission data whenever possible and appropriate. An assurance statement does not yet exist, as the figures and calculation process in this report have not yet been audited by an external party.

Glossary

Activity data. Activity data are input data for calculating GHG emissions and refer to the data associated with an activity that generates GHG emissions, such as liters of gasoline consumed by company vehicles. Activity data are recorded in physical units (e.g., liters) or energy units (e.g., kilowatt-hours) and then combined with an emission factor and the corresponding GWP value to calculate CO₂e.

Carbon dioxide equivalent (CO₂e). Carbon dioxide equivalent (CO₂e) is the standard unit used to compare and account for emissions of various greenhouse gases based on their global warming potential (GWP). For example, CO₂ has a GWP of 1 and CH₄ (methane) has a GWP of approximately 28 (given a time horizon of 100 years). Therefore, for every ton of CH₄ emitted, an equivalent of 28 tons of CO₂ would be emitted. Since a ton of a particular GHG does not have the same GWP as a ton of another, this standard unit is a simple way to normalize GHGs and express them as CO₂ equivalent.

Emission factor. An emission factor is used to calculate GHG emissions for a given source and for units of activity data. Emission factors reflect average values by sector, technology type, and/or fuel type

Global warming potential (GWP). Greenhouse gases released into the atmosphere have different radiative effects depending on the unique properties of the gas. The factor that describes the radiative effect of one unit of a particular greenhouse gas compared to one unit of CO₂ is called the GWP. Because the amount of warming that a gas causes over a period of time (typically 100 years) varies, GHG emission calculations must consider the GWP of each gas. The GWP is an index, with CO₂ having an index value of 1. The GWP for all other GHGs refers to the amount of warming they cause compared to CO₂.

Greenhouse Gas (GHG). The gas that causes the greenhouse effect by absorbing infrared radiation.

Nitrogen Trifluoride (NF₃). Nitrogen trifluoride is primarily used in the semiconductor industry, for example in the manufacturing of flat panel displays and solar cells, to remove residues during vapor deposition. NF₃ is also used in this field for plasma etching, etching silicon, and cleaning chemical vapor deposition (CVD) chambers. The gas is a strong oxidizer and is used to clean the reaction and vacuum chambers of silicon residues in thin film deposition systems.

Sulfur Hexafluoride (SF₆). Because of its chemical inertness, sulfur hexafluoride is used as an insulating and cooling gas. One main area of use can be in electrical engineering. Here, the areas of application are very diverse. The gas is used in switchgear for high and medium voltages, high-voltage pipelines, transformers, instrument transformers, particle accelerators, in X-ray equipment and ultra-high-frequency line systems, and in the semiconductor industry as an etching and chamber cleaning gas. SF₆ is used to switch off high short-circuit currents resulting from disturbances in the circuit in milliseconds and to extinguish strong electric arcs occurring in the switching contacts. SF₆ is also used in military radar systems as well as in medicine and industry for irradiation, but also in voltage stabilizers of electron microscopes and X-ray equipment used for material and manufacturing inspection.

References

European Commission (2018). PEFCR – Feed for food producing animals.
https://ec.europa.eu/environment/eusds/smgp/pdf/PEFCR_feed.pdf;
https://ec.europa.eu/environment/eusds/smgp/PEFCR_OEFSR_en.htm#final

Global Reporting Initiative (2016). GRI Standards – GRI 305: Emissionen.
<https://www.globalreporting.org/how-to-use-the-gri-standards/gri-standards-german-translations/>

Greenhouse Gas Protocol (2021). Calculation Tools. <https://ghgprotocol.org/calculation-tools>

World Resources Institute (2015). GHG Protocol Scope 2 Guidance – An amendment to the GHG Protocol Corporate Standard. <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>

World Resources Institute & World Business Council for Sustainable Development (2004). The Greenhouse Gas Protocol – A Corporate Accounting and Reporting Standard. <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>

Statista (2021). Entwicklung des CO₂-Emissionsfaktors für den Strommix in Deutschland in den Jahren 1990 bis 2019. <https://de.statista.com/statistik/daten/studie/38897/umfrage/co2-emissionsfaktor-fuer-den-strommix-in-deutschland-seit-1990/#professional>

Statistisches Bundesamt (Destatis; 2018). Erhebung bestimmter klimawirksamer Stoffe Schwefelhexafluorid (SF₆) und Stickstofftrifluorid (NF₃).
https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Umwelt/Klimawirksame-Stoffe/Publikationen/Downloads-Klimawirksame-Stoffe/schwefelhexafluorid-5332401187004.pdf?__blob=publicationFile&v=4

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