



Organisational GHG Footprint 2019

Golden Acre Foods Ltd.



ecoact
an atos company



www.eco-act.com

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1 Executive summary

1.1 Golden Acre Foods Carbon Footprint

Golden Acre Foods (GAF) is a British wholesaler and food distributor operating across 15 countries and headquartered in Greater London. GAF aims to become carbon neutral by 2025 and is actively working to measure their carbon footprint for the reporting period of 2019. This will act as the baseline to enable GAF to reduce its environmental impact and develop long-term sustainability goals.

GAF’s carbon footprint in 2019 was **1,151.9 tCO₂e**.

This includes direct emissions from the combustion of fuel and refrigerant use (Scope 1); indirect emissions from electricity (Scope 2); and indirect emissions from your value chain which can be considered under your ‘operational’ (offices) footprint (Scope 3)¹.

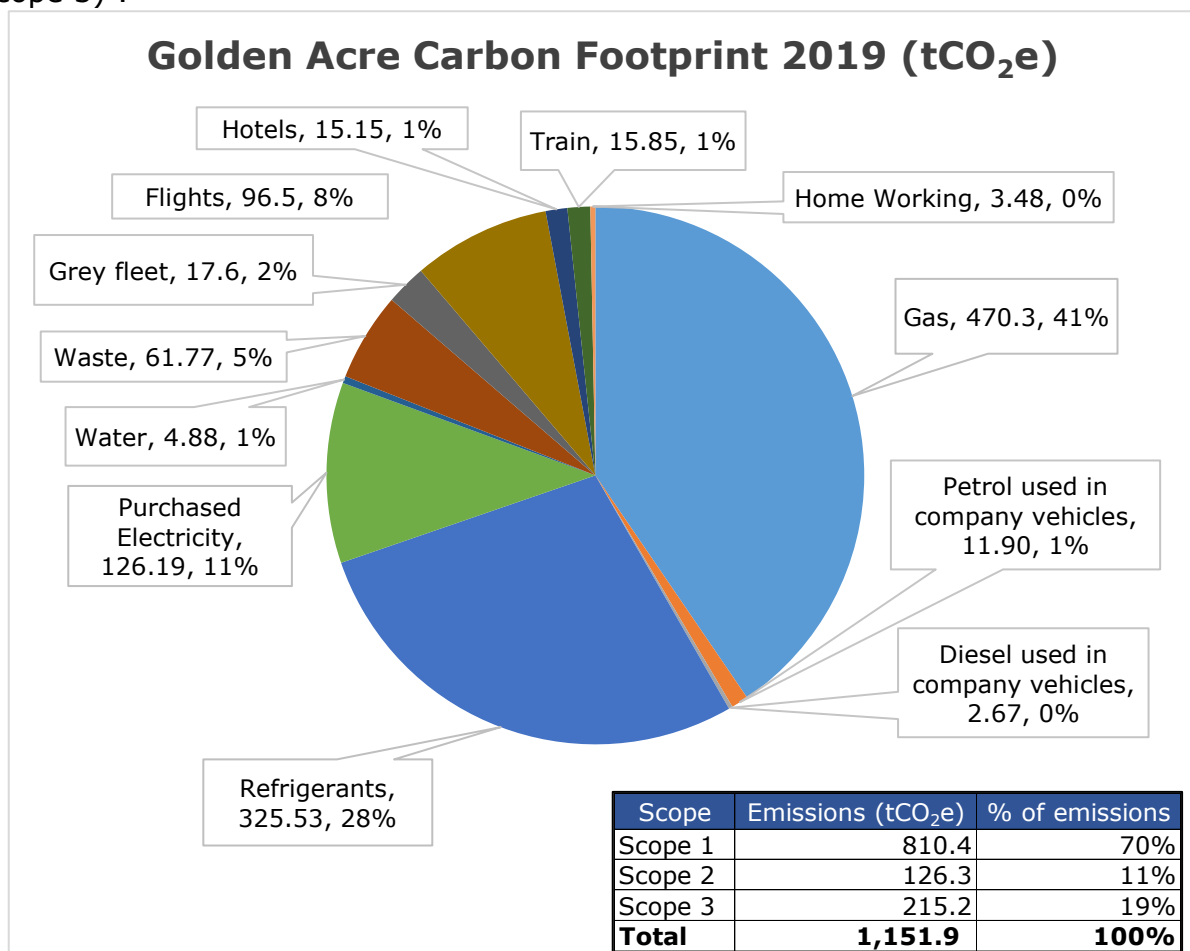


Figure 1- Emissions by source in tonnes of CO₂e (2019)

¹ Scope 3 categories included in this assessment are business travel, homeworking, water, and waste. This does not account for the full value chain emissions. EcoAct is undertook a Scope 3 Scoping exercise separately to this footprint to understand the materiality of Scope 3.



The largest emissions source is Scope 1 (70% of total emissions). Scope 1 emissions are primarily attributed to natural gas (58% of Scope 1) and refrigerants (40% of Scope 1), with a smaller proportion relating to company vehicles, both diesel and petrol (<2%). Gas usage within the production site is high owing to the large floor area.

Scope 2 emissions from purchased electricity account for 126.3 tCO₂e (11% of total emissions). Office based organisations typically have a larger Scope 2 footprint compared to Scope 1 but owing to the high gas and refrigerant usage associated with the production site, electricity emissions are smaller relative to Scope 1 emissions.

The reduced selection of Scope 3 categories included in the footprint account for 215.2 tCO₂e (19% of total emissions). Business travel is the largest proportion of Scope 3 emissions; this includes grey fleet, flights, hotels and trains and makes up 67% of Scope 3. Emissions are broken down by site and Scope below.

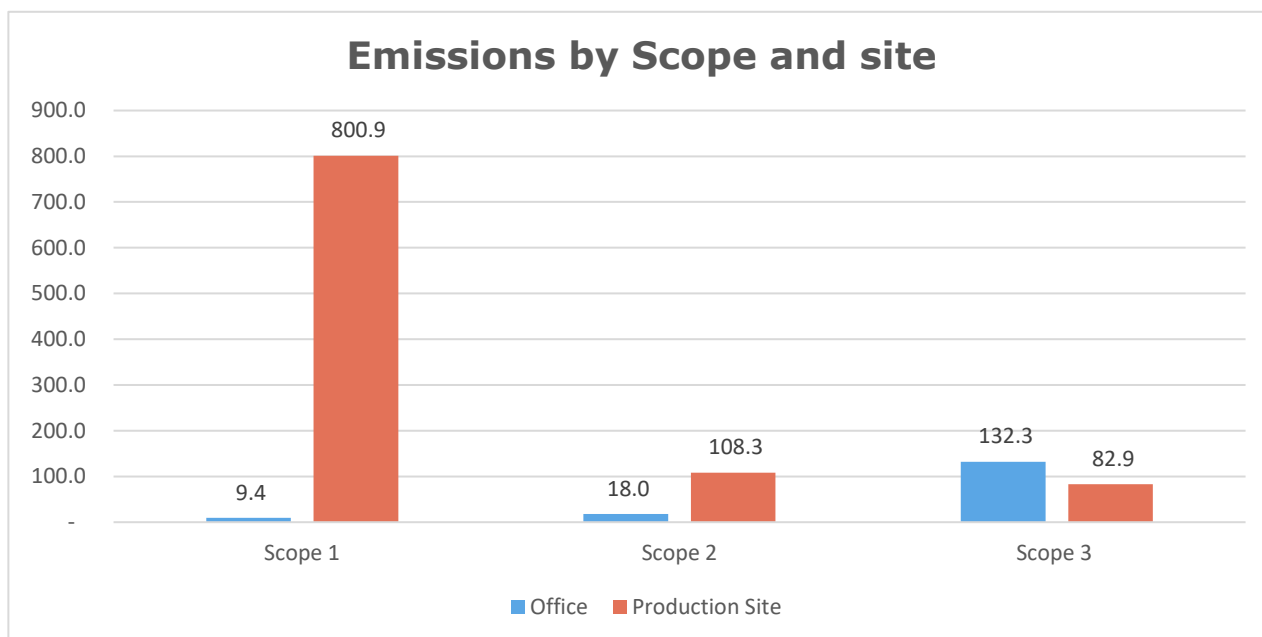


Figure 2- Emissions by Scope and site (2019)

Scope	Office	Production Site	Total
Scope 1	9.4	800.9	810.4
Scope 2	18.0	108.3	126.3
Scope 3	132.3	82.9	215.2
Total	159.8	992.1	1,151.9

Table 1- Emissions by Scope and site (tCO₂e)

Further breakdown of emissions by source is provided below.



Emissions by source

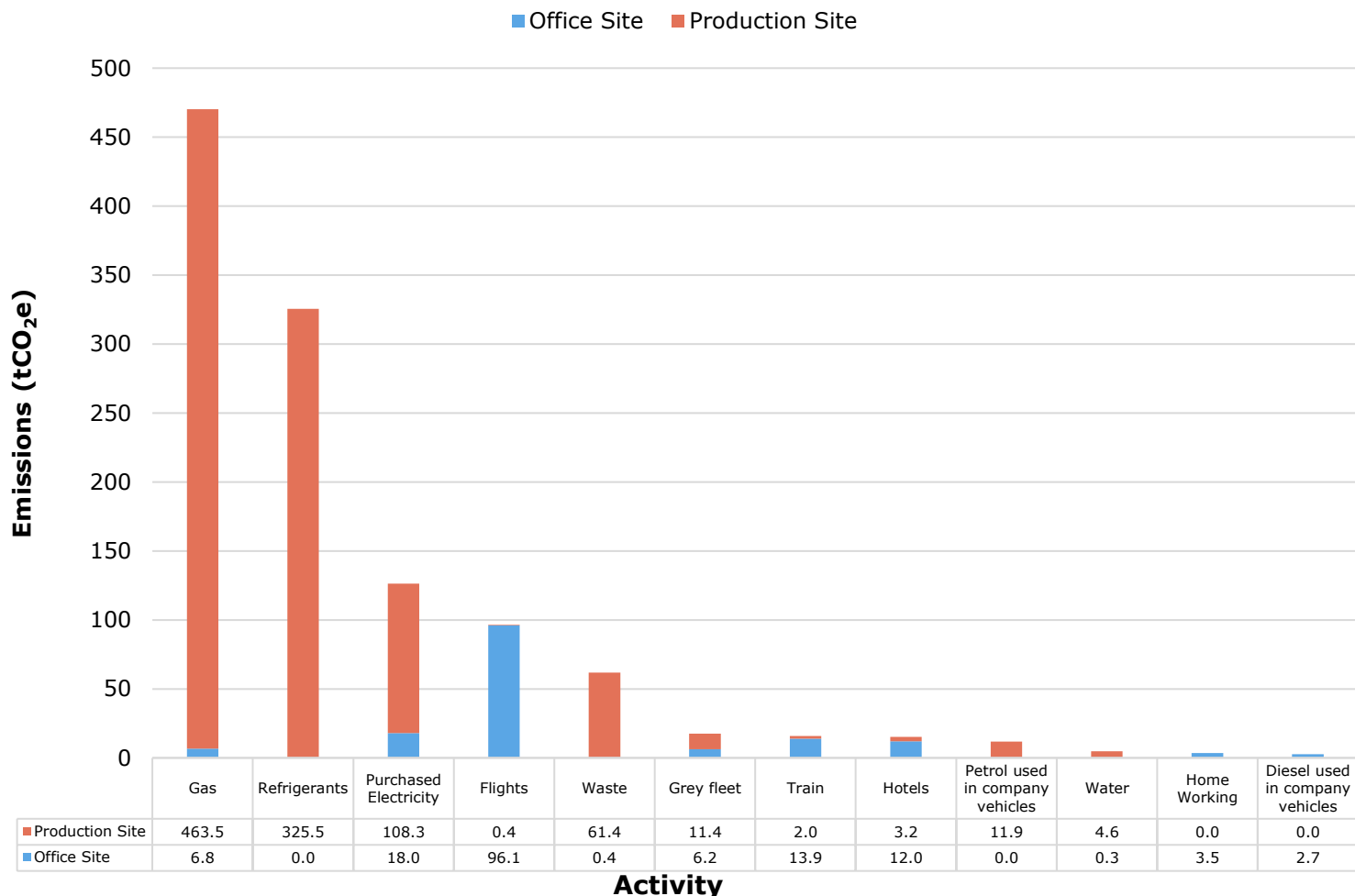


Figure 3- Emissions by source (2019)

Emissions intensity:

Emissions intensity metrics demonstrate a ratio expressing the emissions per unit of physical activity or economic activity. Demonstrated below are the emissions by full time employee (FTE).

Intensity metric	
Total FTE	89
Total Scope 1 & 2	936.6
Intensity metric (Total Scope 1 & 2/FTE)	10.5

Table 2- Scope 1 & 2 Intensity metric (Emissions/FTE) 2019



Site	FTE	Total Scope 1, 2 and 3	tCO ₂ e/FTE
Office	37	159.8	4.3
Production	52	992.1	19.1
Total	89	1,151.9	12.9

Table 3- Total footprint intensity metric (2019)

EcoAct recommends collecting primary data for all emissions sources. This would provide a more accurate footprint, highlight the hotspots, and will improve the ability to track emissions over time.

As Scope 3 is anticipated to be a large proportion of the total footprint of GAF, we recommend undertaking a full Scope 3 calculation in line with best practice.



2 Results

2.1 Operational carbon footprint

GAF’s operational carbon footprint arises from activity at the office and production site, detailed in Figure 3. The operational footprint was **988.9 tCO₂e**, or **86%** of the total carbon footprint. Emissions are calculated from energy use data, building maintenance records, and waste and water use reported by site.

For the site where no primary data was provided, we extrapolated activity data using recognised assumptions and benchmarks. A list of assumptions is outlined in [Appendix A](#).

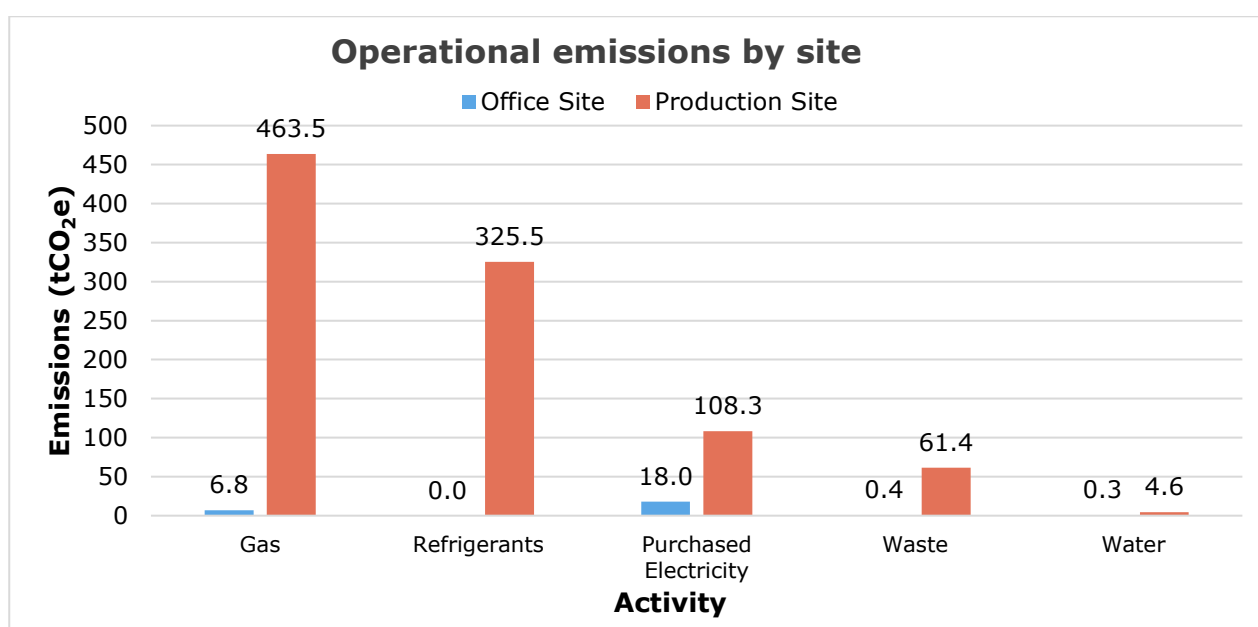


Figure 4- Operational emissions by site (2019)

The production site is more carbon intensive than the office site, with an emissions intensity of 18.5 vs. 0.7 tCO₂e/FTE for operational emissions (refer to ‘intensity metric’ definition in Appendix A). The production site comprises **97%** of the operational footprint. This is a result of the large natural gas consumption (2,520,975 kWh) and the refrigerant top-ups (83 kgs) associated with refrigerated storage and freezers. The production site is additionally larger in floor area (1,510 vs 369 m² for the office site).

Site	Floor area	FTE	Operational footprint	tCO ₂ e/FTE	tCO ₂ e/m ²
Office	369	37	25.4	0.7	0.1
Production	1,510	52	963.2	18.5	0.6
Total	1,879	89	988.6	19.2	0.7

Table 4- Operational emissions intensities (2019)



Waste accounts for **6%** of the operational footprint. The production site provided primary data (kgs) as well as the number of bin collections. Bin collections were converted to mass using the Waste and Resources Action Programme (WRAP) Business Waste Calculator.

For the Chertsey office, as no waste data was available, EcoAct used the assumption of 200 kg/FTE² with the application of the 2019 UK National Recycling Rate.

Water emissions are 4.9 tCO₂e (<1% of operational emissions). Water consumption was provided for the production site (4,353 m³) resulting in 4.6 tCO₂e, the office site was estimated using the Real Estate Environmental Benchmark³ of typical water usage (35 litres/FTE/working day).

Further breakdown of each emissions source is provided in the following section.

³ <https://www.betterbuildingspartnership.co.uk/node/129>
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2.2. Scope 1 emissions

Scope 1 emissions arise from the combustion of a fuel or from the escape of a fluorinated gas or other ozone depleting substance – these “fugitive” emissions can have an outside impact on an organisation’s emissions, and so even small amounts can be material to the overall footprint.

Natural gas

Gas use across both sites in 2019 was **2,557,839** kWh. GHG emissions from this activity totalled **470.3 tCO₂e**, or **41%** of the total Scope 1, 2 & 3 footprint. 99% of gas consumption was associated with the production site.

The production site provided actual gas data. Office gas usage was estimated using an office benchmark calculating typical gas consumption per m². In order to accurately estimate emissions, GAF should engage with the office’s landlord to provide raw consumption data. We suggest obtaining monthly consumption data, as hotspots can be identified, and efficiency saving initiatives can be put in place effectively.

Site	Floor Area (m ²)	Natural Gas 2019 (kWh)	Extrapolated	Emissions (tCO ₂ e)
Office	369	36,864	Yes	6.8
Production	1,510	2,520,975	No	463.5
Total	1,879	2,557,839	-	470.3

Table 5- Gas consumption by site (2019)

Refrigerants

Refrigerating and freezing food is a large part of GAF’s total carbon footprint. The production site provided data on refrigerant top-ups for its spiral freezer, where 83 kgs of refrigerant gas (R404A) was used. This resulted in **325.5 tCO₂e** being emitted, a significant contribution to the overall footprint (**28%**).

The office site had no available refrigerant data and is therefore excluded from the footprint. EcoAct undertook a high-level estimation of the potential emissions to estimate materiality (expected to be <5% of total Scope 1 and 2 emissions). Due to the insufficient level of quality for the estimation and low materiality of the emissions source, office refrigerants were excluded in line with carbon accounting principles.



Fuel used in company vehicles

Company car emissions are **14.6 tCO₂e**, or **1%** of total GHG emissions. Both the office and production site provided data for the use of petrol/diesel in company cars in both mileage and spend data. EcoAct calculated fuel usage using the UK government-sourced litres per km and average petrol prices in 2019.

Site	Fuel Use	Consumption 2019 (litres)	Emissions (tCO ₂ e)
Office	Diesel	1,030	2.7
Production	Petrol	5,388	11.9
Total	-	-	14.6

Table 6- Fuel consumption by site (2019)



2.3. Scope 2 emissions

Companies with any operations in markets with access to contractual agreements (a contract relating to the purchase and sale of energy) shall report Scope 2 emissions in two ways. A location-based method and market-based method.

Location-based emissions are emissions relating to the electricity use from the grid. Market-based emissions relate to emissions from energy from specific energy contracts.

Electricity consumption – Location based

In 2019, GAF consumed **494,005 kWh** of electricity (14% of which was extrapolated). Emissions from purchased electricity totalled **126.3 tCO₂e**, (**11%** of the total carbon footprint).

Site	Floor Area (m ²)	Electricity 2019 (kWh)	Extrapolated	Emissions (tCO ₂ e)
Office	369	70,410	Yes	18.0
Production	1,510	423,595	No	108.3
Total	1,879	494,005		126.3

Table 7- Electricity consumption by site (2019)

Primary data was unavailable for the office site, therefore data was estimated using typical office electricity consumption per m² from the CIBSE environmental benchmark⁴. We recommend GAF engage with the Chertsey office landlord to obtain raw consumption data in future. Monthly consumption data would again enable better tracking, and consumption reduction initiatives to be put in place effectively.

Electricity consumption – Market-based calculations

Under the market-based emissions approach, the purchase of renewable energy is a valid way to reduce emissions as companies can report zero emissions from renewable energy purchased.

⁴ Chartered Institute of Building Services Engineers
pg. 13 – Golden Acree Foods | Organisational GHG footprint 2019



2.4. Scope 3 - Business travel

Business travel typically includes air travel, rail travel, private vehicle uses for company business (grey fleet), taxis and hotel stays.

GAF's business travel emissions represent **145.1 tCO₂e**, **13%** of the total carbon footprint.

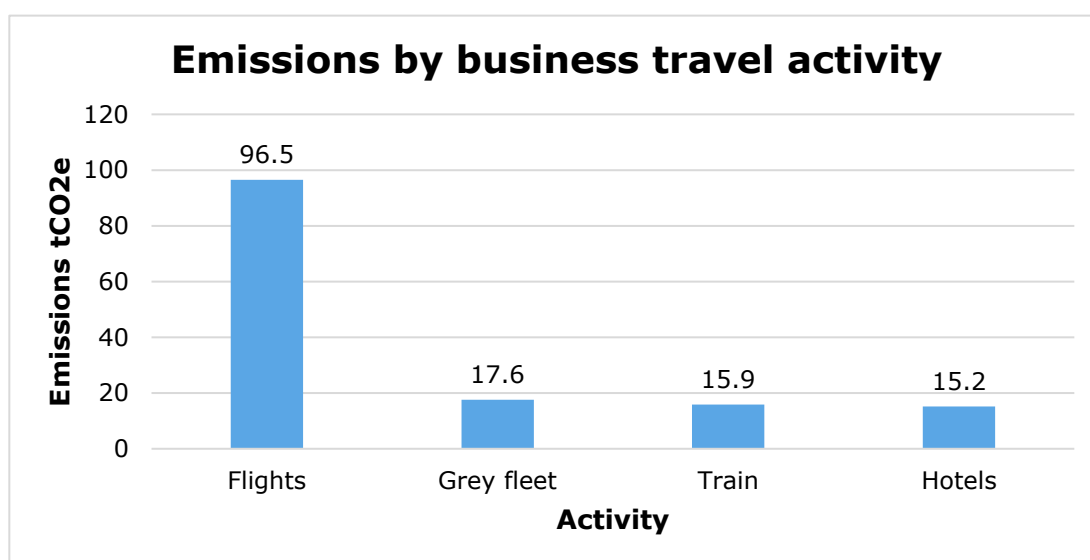


Figure 5- Business travel emissions (2019)

Emissions from flights are a hotspot (67% of business travel). Flights have higher associated emissions due to the high emissions factors associated with jet fuel. The class of travel affects emissions as more space is required per passenger for business and first-class flights.

All of GAF's flights were economy class and are categorised into three types in Table 7. The emissions intensity from domestic flights are the highest and present an area where emissions could be reduced effectively through alternative forms of transport.

Flight type ⁵	Class	Distance (km) 2019	Emissions (tCO ₂ e)	Emissions Intensity (kgCO ₂ e/km) ⁶
Domestic	Economy	127,140	32.4	0.255
Short haul (<3700 km)	Economy	281,716	43.9	0.156
Long haul (>3700 km)	Economy	132,459	19.8	0.150
Average flight	-	Spend data	0.4	-
Total		541,315	96.5	0.177

Table 8- Flight emissions by type (2019)

⁷ Haul distances are defined by the UK Government conversion factors for company reporting (BEIS 2019)



2.5 Scope 3 – Homeworking emissions

Total emissions from homeworking are **3.5 tCO₂e**.

This has been calculated using Eco Act's Homeworking tool which was developed in collaboration with industry partners. Emissions from homeworking include electricity emissions for the home office (desk emissions), lighting, and gas usage.

The full extent of Category 7 – employee commuting has not been accounted for as it is out of scope for the report, however, homeworking emissions can be considered as part of the operational footprint and have therefore been included.

Homeworking emissions were based on the following percentages of people working from home during the reporting period.

% Working from Home (WFH)												
Site	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Office	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%
Production	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%

Table 9- Homeworking percentages (2019)

The average % WFH for the year was 6% (weighted more due to higher number of FTEs at production site). The data provided was given as an average annual percentage. To increase accuracy of this calculation, monthly data should be collected.



3. Recommendations – emissions accounting

Based upon the emissions footprint, our initial emissions accounting recommendations are:

- **Data:** Obtain primary data where possible in line with the Greenhouse Gas Protocol's data hierarchy. This includes actual energy consumption values (kWh) for all locations, mass of waste (kgs), business travel mileage (km/mi). Actual consumption data for all offices will allow GAF to better identify emissions hotspots and implement energy saving activities. Obtaining primary data for specific spaces where GAF has control will reduce the amount of extrapolation and improve the reliability and quality of data.
- **Work with landlords to switch to renewable electricity:** Electricity usage generates a reasonable proportion of Golden Acre Foods's emissions and the use of renewable electricity throughout the organisation would be a significant quick win in reducing GAF's carbon impacts. GAF does not purchase renewable electricity at present. If 100% renewable electricity was purchased, the total carbon footprint could be reduced by 126.3 tCO₂e, or 11%.
- **Estimate and include the full impacts of Scope 3 emissions:** A full Scope 3 calculation was outside the scope of work of this report but may highlight material additional emissions which should be included in GAF's future reporting. Typically Scope 3 makes up the largest proportion of emissions and are increasingly reported in line with best practice.
- **PAS2060⁷:** To facilitate GAF's carbon neutrality goals, we recommend ensuring that offsetting aligns to PAS2060, the international standard for carbon neutrality. This provides verification for offsetting Scope 1 and 2 emissions and could also include offsetting Scope 3 emissions in the future.

⁷ <https://www.bsigroup.com/en-IN/PAS-2060-Carbon-Neutrality/>
pg. 16 – Golden Acre Foods | Organisational GHG footprint 2019

Appendix A – Definitions

Scope 1 – Direct emissions generated from the activities of your company, e.g., fuel used by facilities, refrigerant use, and vehicles that your company owns or operates.

Scope 2 – Indirect emissions generated from the generation of procured electricity your company consumes, e.g., electricity and steam.

Scope 3 – Other indirect emissions from your company’s value chain, e.g., purchased raw goods, distribution and transportation, waste, business travel, employee commuting, use of sold products and end of life treatment.

Value chain – describes the full chain of a business’s activities, incorporating upstream activity (supply chain) and downstream activity e.g., Product use and disposal.

Primary data – data from specific activities within a company’s value chain, e.g., energy consumption in kwh, waste data in kgs.

Secondary data – data that is not from specific activities within a company’s value chain which includes industry-average data or proxy data. E.g., spend data.

Operational carbon – the emissions generated at a company’s site/s, including energy consumption, refrigerant use, water, and waste.

Intensity metric – a ratio that expresses the emissions per unit of physical activity or economic activity, making comparison clearly visible. E.g., tCO₂e per FTE (tonnes of carbon per full time employee)

Materiality – how significant the total emissions is expected to be for a certain activity.

For calculation of electricity-related emissions:

Location-based method – calculated based on the average emissions intensity of the electricity grids on which energy consumption occurs (using mostly grid-average emissions)

Market-based method – calculated based on the electricity providers that companies have directly chosen (e.g., green tariffs or supplier-specific emissions rates).

Appendix B – Data gaps and estimation methods

Emission Source	Data gaps and estimation method
Natural gas	As this data was not provided for the office site, gas consumption was estimated using the 2019 CIBSE TM46 plus REEB benchmark for offices, as 100 kWh/m ² . We have taken the larger of the two estimations to be conservative in line with carbon accounting principles.
Electricity	As no data was provided for the office site, electricity consumption was estimated using the 2019 CIBSE TM46 plus REEB benchmark for offices, as 191 kWh/m ² .
Water	For the office site, water usage was estimated based on the 2019 REEB benchmark for offices - 35 litres/FTE/working day.
Waste	For the production site, waste volumes have been estimated from data provided by the site on the number of weekly collections as applied to WRAP's business waste estimation tool.
Waste	For the office site, waste production has been estimated based on average waste production per FTE of 200kg per FTE per annum, and the average UK recycling rate in 2019 of 42.6%.
Air travel	For all flight data, only flights which did not land in or depart from the UK are assumed to be international, not UK (this results in a different emissions factor being applied). Haul type descriptions are based on the UK Government GHG conversion factors descriptions of long-haul and short haul.
Hotel stays	Calculated from spend data using CEDA emission factor for accommodation.

Appendix C – Calculation Methodology

The carbon calculation process

A carbon footprint is a calculation of an organisation’s greenhouse gas (GHG) emissions. This is measured in tonnes of CO₂ equivalent (tCO₂e), which considers the “global warming potential” (GWP) of GHGs and allows us to report the result as one combined figure. The GWP indicates the amount of warming a GHG causes over a given period.

Businesses calculate carbon footprints for the following reasons:

- To calculate a baseline year for emissions reduction targets
- Verify and quantify environmental impact
- Comply with legislative requirements
- Drive performance improvements
- Set targets and net-zero ambitions

EcoAct have used the GHG Protocol Corporate Accounting and Reporting Standard⁸ to calculate this footprint. The standard provides requirements and guidance for organisations preparing a corporate-level GHG emissions inventory.

The GHG Protocol categorises emissions into three Scopes. The emissions sources included within this footprint are outlined below.

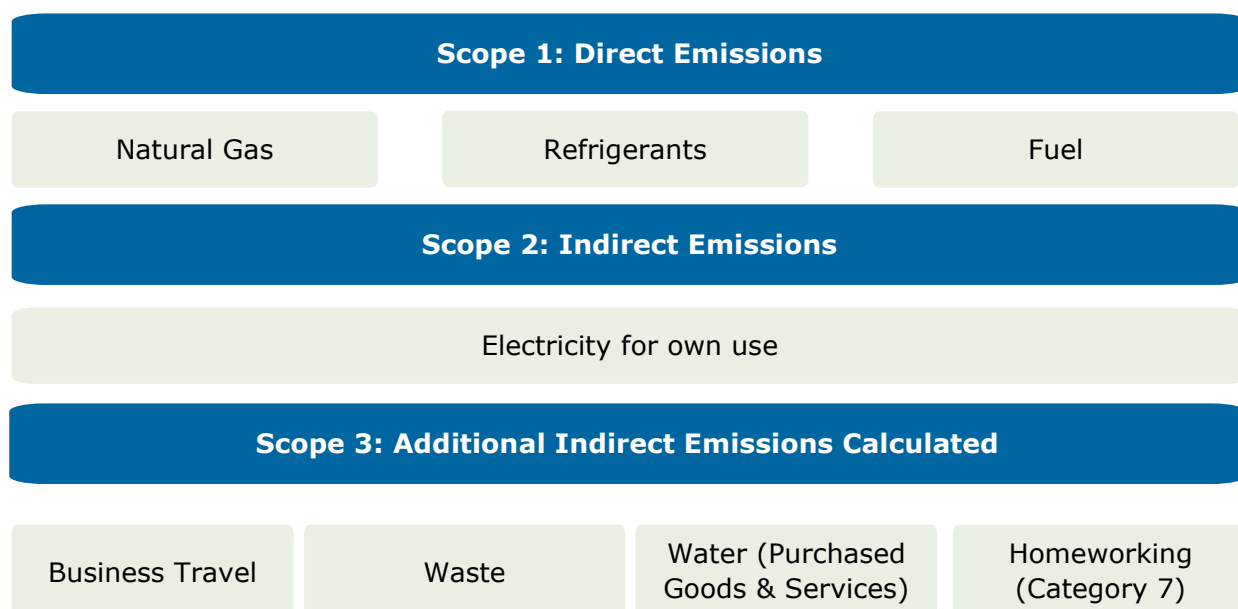


Figure 6- Emissions sources included in GAF footprint

⁸ The Greenhouse Gas Protocol, Corporate Accounting and Reporting Standard, (Revised Edition), World Resources Institute (2004)

EcoAct follows a well-established four-phase approach to calculate emissions.

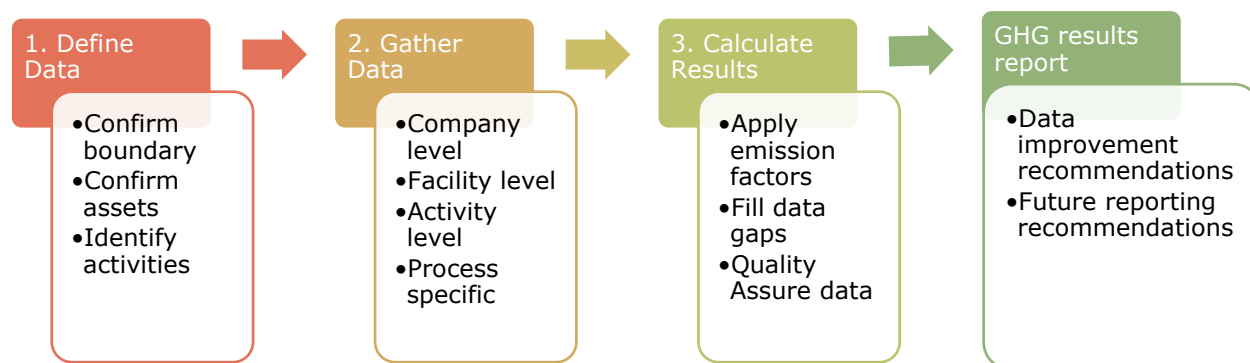


Figure 7- EcoAct carbon footprint calculation process

The carbon footprint calculations use appropriate conversion factors and the widely accepted calculation formula of:

$$\text{Emissions} = \text{Activity data} \times \text{appropriate emission factor}$$

The GHG emissions factors applied within this report are:

- Department for Business, Energy, and Industrial Strategy (BEIS 2019)
- CEDA 2019 – Comprehensive Environmental Data Archive – an economic input-output source used for spend-based calculations.

The Greenhouse Gas Protocol recommends that emissions are calculated, where possible, from the reporting organisation’s activity data. In the case of GAF this means its energy & fuel consumption, its water usage, waste generated from its activities, and the impacts of its business travel, whether from distance travelled or fuel used, alongside hotel stays.

Scope of work and methodology

This report details the carbon footprint of GAF’s operations.

The reporting periods are 1st January to 31st December 2019.

Control approach

Carbon footprints are calculated according to a control approach which can be defined in either financial or operational terms.

The operational control approach is used in this footprint. Under this approach, we have accounted for 100% of the GHG emissions from operations over which GAF has control.

Organisational boundary & operations

GAF, established in 1999, is a British wholesaler and distributor of foods, operating across 15 countries and headquartered in Greater London. This footprint includes the organisational boundary of Golden Acre Foods Ltd.

Activities excluded from the scope of the footprint

To the best of our knowledge, all activities have been included in the scope of the footprint. Where information has been excluded the materiality of these emissions are anticipated to be <5% of total emissions. This is in line with GHG Protocol guidance.

GAF have reported two Scope 3 categories in full (business travel and waste) and two in part out of 15 possible Scope 3 categories. Water forms part of Category 1- purchased goods and services and employee commuting/homeworking are in Category 7.

Data: process, quality, gaps, and checks

This year the data collection process was co-ordinated by Chris Goodwin, CSR and Sustainability Executive at GAF.

Table 8 below provides a breakdown of actual data provided by each site. For the office where data was not provided but was identified as relevant, consumption was extrapolated using an office benchmark of consumption per FTE or m² depending on which was most relevant to the emission source.

Site Name	Floor Area (m ²)	Electricity	Gas	Water	Waste	Other Fuels	Refrigerants
Office	369	Extrapolate	Extrapolate	Extrapolate	Extrapolate	Yes	No
Production Site	1,510	Yes	Yes	Yes	Yes	Yes	Yes

Table 10- 2019 breakdown of actual and estimated data sources by location

About EcoAct

EcoAct, an Atos company, is an international advisory consultancy and project developer that works with clients to help them succeed in their climate ambitions. We work with many large and complex multinational organisations to offer solutions to their sustainability challenges.

We believe that climate change, energy management and sustainability are drivers of corporate performance and we seek to address business or organisational problems and opportunities in an intelligent way.

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