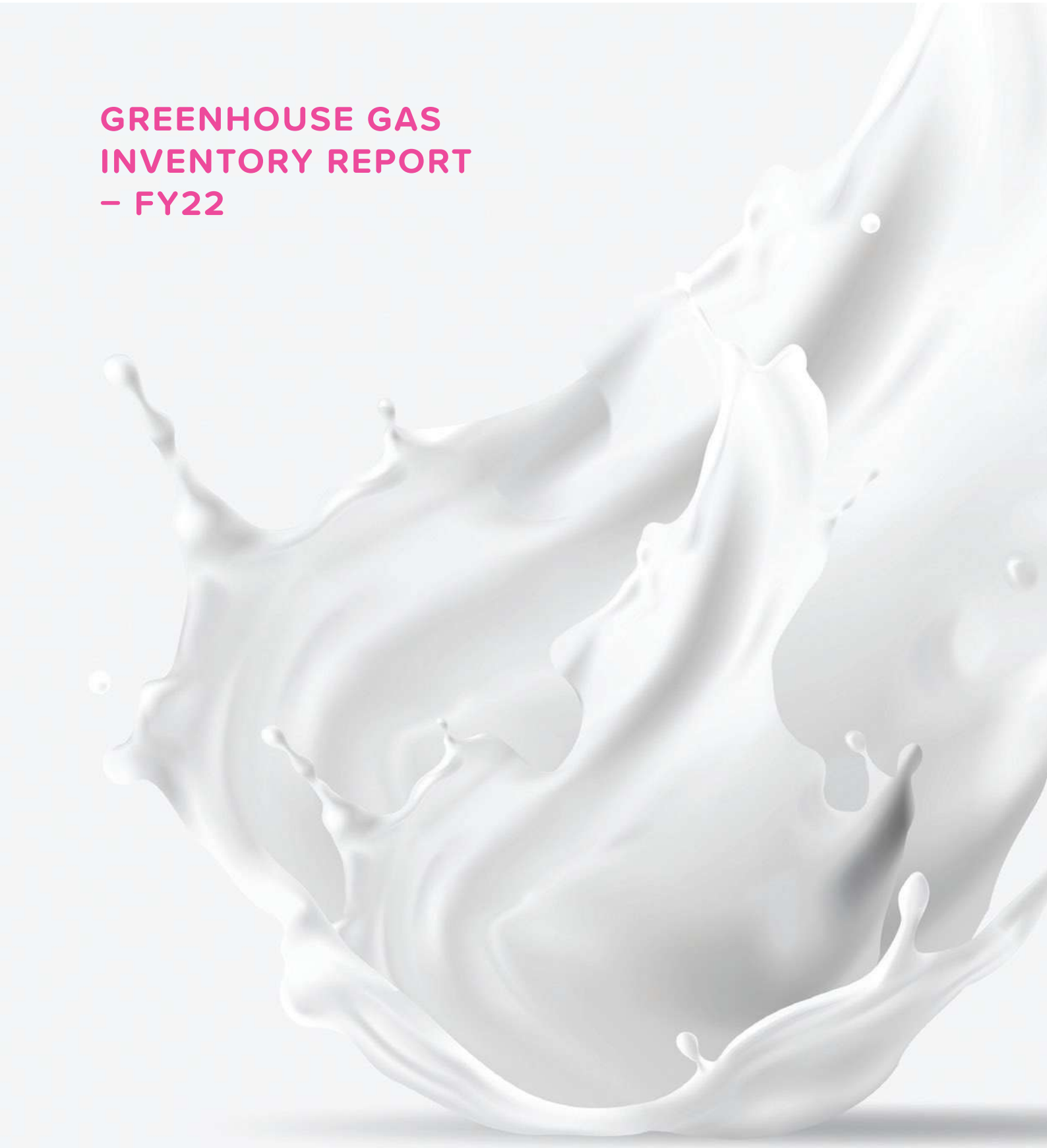
GREENHOUSE GAS INVENTORY REPORT – FY22



Synlait

Doing Milk Differently For A Healthier World

CONTENTS

1. INTRODUCTION

Synlait Milk Limited (Synlait) combines expert and sustainable farming practices with state-of-the-art manufacturing processes to produce a range of nutritional milk products that provide genuine benefits for human health and wellbeing. Our purpose *Doing Milk Differently For A Healthier World* is based on three pillars that form our identity: being different, providing essential nutrition, and leading with sustainability. Our disruptive, innovative spirit combined with resolute determination to do the right thing for planet and people sets us apart from the competition.

In April 2021, Synlait upgraded its climate change targets, which were originally set in 2018. The reset targets are approved by the Science Based Targets initiative (SBTi) and align with the New Zealand Government's commitment to keep global warming to 1.5˚C.

Synlait has committed to reduce:

- Absolute Scope 1 and 2 greenhouse gas (GHG) emissions by 45% between FY20 and FY28.
- Scope 3 GHG emissions from on-farm purchased goods and services by 30% per kg of milk solids (kgMS) between FY20 and FY28.

Statement of Intent

This inventory report forms part of Synlait's commitments to sustainability and environmental best practice and informs the senior management's decision-making relating to the company's sustainability strategy. We intend to make this report publicly available through our website.

Base Year

The base year is 1 August 2017 to 31 July 2018. This is the first 12-month period where GHG emissions were calculated and forms the base year for Synlait.

Base year emissions have been restated this year due to an update in OVERSEER®'s software[1], which impacts the calculation of our Scope 3 farmer suppliers' GHG emissions.

Reporting Period

This document is our fifth GHG Emissions Inventory Report and is for the period 1 August 2021 to 31 July 2022 (FY22).

[1] Please refer to our base year recalculation policy on page 15.

2. GHG INVENTORY SUMMARY FOR FY22

Table 1: GHG Emissions by Scope

		FY18 (base year)	FY19	FY20	FY21	FY22	FY18-FY22 Evolution
Scope 1	(1) Direct GHG Emissions	114,589	120,127	133,609	133,794	129,910	13%
Scope 1 Excluding Synlait Farms	(1) Direct GHG Emissions	114,589	120,127	133,609	133,794	128,954	13%
Scope 2	(2) Indirect GHG emissions from imported energy	6,923	7,035	8,804	8,504	11,097	60%
Scope 2 Excluding Synlait Farms	(2) Indirect GHG emissions from imported energy	6,923	7,035	8,804	8,504	10,923	58%
Subtotal	**Scope 1 and 2 Emissions (tCO_2e)**	**121,512**	**127,162**	**142,413**	**142,298**	**141,007**	16%
Subtotal Excluding Synlait Farms	**Scope 1 and 2 Emissions (tCO_2e)**	**121,512**	**127,162**	**142,413**	**142,298**	**139,877**	15%
Scope 3	(3) Indirect GHG emissions from transportation and distribution	42,991	46,287	46,560	53,057[2]	54,806	27%
	(4) Indirect GHG emissions from products and services used by the organisation	1,005	1,660	3,547	3,418	2,439	143%
	(5) Indirect GHG emissions from the use of the organisation's products	-	-	-	-	-	-
	(6) Indirect GHG emissions from other sources – on-farm emissions[1]	754,992	731,935	856,622	930,065	899,869	19%
Subtotal	**Scope 3 Emissions (tCO_2e)**	**798,988**	**779,882**	**906,729**	**986,540**	**957,114**	20%
Total Emissions (tCO_2e)		**920,500**	**907,044**	**1,049,142**	**1,128,838**	**1,098,121**	19%

[1] Our farmer suppliers' GHG data is extracted from OVERSEER®, a New Zealand farm management software that is used by all our farmer suppliers. As science evolves and progresses our understanding of farm systems, OVERSEER®'s software is regularly updated. As a result, each year, we are required to update our on-farm GHG data using OVERSEER®'s latest version and restate the prior years' numbers back to our base year (FY18-FY21) to make robust comparisons. Please refer to our FY21 GHG Inventory Report for previous results we have disclosed. Farmer suppliers' emissions are for the period 1 July 2021 to 30 June 2022. New suppliers, whose contract agreements started on 1 June 2022, were excluded from both the GHG footprint and milk solids production numbers, as they would have supplied Synlait for only 30 days. See page 14 for full disclosure of the methodology and uncertainties around farm emissions.

[2] Restated, as more complete datasets were provided across all suppliers and customers for Dairyworks in FY22, whereas only the top three were provided last year.

2. GHG INVENTORY SUMMARY FOR FY22 (CONTINUED)

Table 2: GHG Emissions by Activity

Emissions Sources	FY18 – tCO_2e	FY19 – tCO_2e	FY20 – tCO_2e	FY21 – tCO_2e	FY22 – tCO_2e
Scope 1					
LPG	470	503	586	531	362
Coal	108,301	113,643	114,082	113,235	111,478
Diesel – Milk Tankers	4,302	4,196	6,035	6,791	7,091
Diesel – Boiler	Not applicable	Not applicable	906	982	40[1]
Distributed Natural Gas	163	169	10,058	10,748	8,657
Company Cars	73	76	84	243	296
Combi Lift and Bus	0	125	105	123	71[2]
Packing Gas	1,266	1,349	1,719	1,103	937
Rental Cars	14	46	34	19	22
Refrigerants	0	20	0	19	0
Synlait Farms	-	-	-	-	956
Scope 2					
Electricity	6,923	7,035	8,804	8,504	10,923[3]
Synlait Farms Electricity	-	-	-	-	174
Scope 3					
Gas Transmission Losses	19	20	1,181	639	515
Electricity Transmission Losses	565	533	667	729	1,003
Synlait Farms Electricity Transmission Losses	-	-	-	-	16
Waste to Landfill	421	1,108	1,699	2,050	904[4]
Coal and DAF Transport	212	209	635	1,845	1,822
Road Freight (outbound)	2,481	2,683	3,475	5,956	5,679
Road Freight (inbound)	2,152	2,265	2,688	4,162	4,141
Sea Freight (outbound)	25,540	25,151	25,831	29,562	33,134
Sea Freight (inbound)	9,377	11,983	8,971	7,907	4,768
Air Freight (outbound)	392	551	1,617	2,468	913
Air Freight (inbound)	0	0	99	38	60
Inter-Warehouse Road Freight	559	605	644	338	58
Inter-Warehouse Sea Freight	307	756	1,306	352	688
Rail Freight	-	-	-	59	237
Car Mileage	4	9	22	15	13
Staff Commute	-	-	-	-	2,919
Taxi	3	4	Excluded	Excluded	Excluded
Air Travel	1,814	1,829	1,223	335	341
Hotel	150	241	49	20	34
Farmer Suppliers	754,992	731,935	856,622	930,065	899,869
Total GHG Emissions	**920,500**	**907,044**	**1,049,142**	**1,128,838**	**1,098,121**

[1] The significant decrease in diesel emissions is due to the Talbot Forest Cheese boiler being non-operational in FY22.
[2] Synlait Combi Lift data was unavailable in FY22. FY22 emissions are due to the Synlait Bus only.
[3] The electricity emissions factor increased by 0.020 $kgCO_2e$/unit. If not for emissions factor change, total emissions would be 9187 tCO_2e.
[4] The significant decrease is due to the waste emissions factor changing from 1.17 to 0.65 $kgCO_2e$/unit.

2. GHG INVENTORY SUMMARY FOR FY22 (CONTINUED)

Table 3: FY22 GHG Emissions by Gas Type

FY22 Emissions by Type	Total - tCO_2e	CO_2 - tCO_2e	CH_4 - tCO_2e	N_2O - tCO_2e	HFC - tCO_2e
Scope 1 and 2 Emissions	**141,007**	139,581	566	860	0
Scope 3 Farmer Supplier Emissions	**899,869**	139,872	585,734	174,263	0

Table 4: GHG Emissions Intensity

Emission Intensity Metrics	FY18 tCO_2e	FY19 tCO_2e	FY20 tCO_2e	FY21 tCO_2e	FY22 tCO_2e	FY18-FY22 Evolution
Scope 1 and 2 Emissions Per Tonne of Finished Product	0.87	0.82	0.74	0.66	0.69	**-21%**
Scope 3 Farmer Supplier Emissions Per Tonne of Milk Solids	11.87	11.48	11.17	10.72	10.85	**-9%**

Table 5: FY22 GHG Emissions Intensity by Gas Type

FY22 Emission Intensity Metrics	Total - tCO_2e	CO_2 - tCO_2e	CH_4 - tCO_2e	N_2O - tCO_2e	HFC - tCO_2e
Scope 1 and 2 Emissions Per Tonne of Finished Product	**0.69**	0.68	0.003	0.004	0
Scope 3 Farmer Supplier Emissions Per Tonne of Milk Solids	**10.85**	1.69	7.06	2.10	0

Table 6: Scope 3 Farmer Supplier Emissions Per kg of Fat and Protein Corrected Milk (FPCM)

	FY18 tCO_2e	FY19 tCO_2e	FY20 tCO_2e	FY21 tCO_2e	FY22 tCO_2e	FY18-FY22 Evolution
Scope 3 Farmer Supplier Emissions Per kg of FPCM	0.93	0.90	0.88	0.84	0.86	**-8%**

3. ORGANISATIONAL BOUNDARY

Organisational boundaries were set with reference to the methodology described in the GHG Protocol and ISO14064-1:2018 standards. The following table outlines the entities that have been included and excluded in the emissions inventory.

Table 7: Legal Entities

Entity Name	Description/Function	Ownership	Inclusions	Comment
Synlait Milk Limited	Parent company		Included	
Synlait Milk Finance Limited	Wholly owned subsidiary, holding company for financing purposes.	100%	Included	No activities that produced GHG emissions therefore not separately reported.
The New Zealand Dairy Company Limited	Wholly owned subsidiary, Synlait acquired the shares in this company when it purchased the blending and canning plant in Auckland. Now a non-trading entity.	100%	Included	No activities that produced GHG emissions therefore not separately reported.
Eighty-Nine Richard Pearse Drive Limited	Wholly owned subsidiary, company that previously owned the underlying land at Synlait Auckland. Synlait acquired the shares in this company when it purchased the blending and canning plant in Auckland. Now a non-trading entity.	100%	Included	No activities that produced GHG emissions therefore not separately reported.
Synlait Business Consulting (Shanghai) Co., Ltd.	Wholly owned subsidiary, satellite office for staff based in China.	100%	Included	GHG emissions estimated to be de minimis, therefore not reported.
Dairyworks Limited and Dairyworks (Australia) Pty Limited[1]	Wholly owned subsidiaries, dairy processing companies in New Zealand and Australia.	100%	Included	
Sichuan New Hope Nutritional Foods	Infant formula company registered in China, owns the Akara and E-Akara brands, which are exclusively manufactured by Synlait.	25%	Excluded	Shareholding only, no operational control.
Primary Collaboration New Zealand Limited	Entity founded by several New Zealand companies to gain a better understanding of the Chinese market and facilitate easier access to China.	17%	Excluded	Shareholding only, no operational control.
Synlait Milk (Holdings) No.1 Limited	Wholly owned subsidiary, originally incorporated for the purposes of holding newly acquired land located adjacent to the Synlait Dunsandel site. Now a non-trading entity.	100%	Included	No activities that produced GHG emissions therefore not separately reported.
Synlait Milk (Dunsandel Farms) Limited	Wholly owned subsidiary, incorporated for the purposes of dairy farming operations on land located adjacent to the Synlait Dunsandel site.	100%	Included	

[1] Dairyworks (Australia) Pty Limited was wound up in the year.

3. ORGANISATIONAL BOUNDARY (CONTINUED)

The following table outlines the business units/sites that have been included and excluded in the emissions inventory:

Table 8: Business Units

Business Unit/Sites	Description/Function	Location	Inclusions	Comment
Synlait Corporate	Corporate emissions across all Synlait sites	Dunsandel	Included	Includes staff travel and freight emissions which are not site specific.
Synlait Dunsandel	Milk processing and manufacturing site	Dunsandel	Included	Includes manufacture and site-specific emissions only.
Synlait Auckland	Milk powder canning and blending site	Auckland	Included	Includes manufacture and site-specific emissions only.
Westney Road	Warehousing	Auckland	Included	Leased premise.
Synlait Pokeno	Milk processing and manufacturing site	Waikato	Included	Includes manufacture and site-specific emissions only.
Synlait Farms	Dairy farms	Dunsandel	Included	Synlait had direct control in FY22. The farms were only used to graze stock and irrigate wastewater in FY22. Includes on-farm and electricity emissions.
Synlait Research and Development Centre	Research and development, part of a larger shared campus	Palmerston North	Excluded	Office space leased and emissions estimated to be de minimis.
Synlait Christchurch	Satellite office	Christchurch	Excluded	Office space leased and emissions estimated to be de minimis.
Synlait China	Satellite office	Shanghai	Excluded	Office space leased and emissions estimated to be de minimis.
Dairyworks Corporate	Corporate emissions across all Dairyworks sites (including Talbort Forest Cheese and leased warehouse)	Christchurch	Included	Includes staff travel and freight emissions which are not site specific.
Temuka Cheese Plant (Talbot Forest Cheese)	Cheese production factory, milk supplied by Synlait	Temuka	Included	Includes manufacture and site-specific emissions only. Non-operational in FY22.
Dairyworks Hornby	Dairy processing factory	Christchurch	Included	Includes manufacture and site-specific emissions only.
Gerald Connolly Place	Warehousing	Christchurch	Included	Leased premise.

4. OPERATIONAL BOUNDARY

Synlait has chosen to report on Scope 1 and Scope 2 emissions, as well as part of Scope 3 emissions.

Table 9: Scope 3 Category Inventory Inclusions and Exclusions

Category 1 – Purchased goods and services	GHG emissions from Canterbury and Waikato dairy farms supplying Synlait are included in the inventory. However, emissions from dairy cows when they are outside of the farm or wintering, i.e. when they are removed from milking platforms and sent to other farms during winter, are excluded. GHG emissions from non-milk suppliers (for example, packaging, raw materials, equipment, services) are excluded from the inventory.
Category 2 – Capital goods	Emissions from capital assets are excluded due to a lack of data availability, however emissions from energy consumption for any construction work or testing of new equipment are included.
Category 3 – Fuel and energy related activities not included in Scope 1 or Scope 2	Transmission losses linked to the purchase of electricity and natural gas are included in the inventory.
Category 4 – Upstream transportation and distribution	All inbound, outbound and inter-warehouse freight are included. Sea freight may have a component of road and rail; however, we do not receive this information from suppliers. An assumption of 50 km from site to port and 50 km from port to the final destination is made to cover the road component and included in the inventory, with the exception of freight carried by KiwiRail. For sea freight carried by KiwiRail, the additional freight component is covered in rail freight. A new rail siding for the transportation of goods between Synlait Dunsandel, Lyttleton Port and Midland Port (in Rolleston) has become operational in June 2021. Rail freight on this route is calculated. Any other rail freight that may happen during transportation is estimated to be de minimis. Inbound freight data includes all raw material and packaging purchases. Engineering purchases are excluded due to the weight information being unavailable and it is estimated that most of the inbound parts are under 2kg, therefore deemed de minimis. To-date we have been unable to collect inbound courier data from suppliers. Most courier items are also estimated to be less than 2kg, therefore are considered de minimis.
Category 5 – Waste and wastewater	Waste from all manufacturing sites is included. Wastewater is excluded due to the emissions factor being based on council processing of wastewater, whereas Synlait treats its own wastewater in its key manufacturing sites (Dunsandel and Pokeno), and the energy used is already included in Scope 2.
Category 6 – Business travel	Air travel (domestic and international), hotel stays and reimbursed travel in private cars are included. Taxis are excluded as collecting the relevant data requires significant manual work, and their emissions have been demonstrated to be de minimis in previous years.
Category 7 – Employee commuting	Included. Staff who drive electric cars or catch public transport other than the Synlait provided buses (Rolleston to Dunsandel return, which is included under diesel in Scope 1), are excluded as estimated to be de minimis.

Category 8 – Upstream leased assets	Fuel used in milk tankers (leased vehicles for the transportation of milk) is included in Scope 1. Synlait leases a warehousing facility in Auckland (Westney Road) and Dairyworks leases a warehouse in Hornby (Gerald Connolly Place). Emissions from LPG use in Westney Road is included in Scope 1 (N/A for Hornby), electricity consumption in both premises is included in Scope 2, and waste is included in Scope 3.
Category 9 – Downstream transportation and distribution	Some freight activities not paid for by Synlait have been included in Category 4, as all inbound and outbound freight activities are captured under this category. It is too difficult to differentiate the contractual agreements for each consignment to separate freight paid or not paid for by Synlait. Freight movement beyond destination warehouse (i.e. distribution centre, retailer and/or end customer) is not included due to lack of data and likely to be de minimis. To-date we have been unable to collect outbound courier data from suppliers. Most courier items are estimated to be less than 2kg, therefore are considered de minimis.
Category 10 – Processing of sold products	Excluded. Most of our ingredients are processed by our customers into a multitude of products. It would be technically difficult to estimate our share of our customers' processing GHG emissions.
Category 11 – Use of sold products	Excluded. We have carried Life Cycle Analyses for three of our key products and in all cases GHG emissions from consumer use represented less than 2.4% of total emissions.
Category 12 – End-of-life treatment of sold products	Excluded. We have carried Life Cycle Analyses for three of our key products and in all cases GHG emissions from consumer disposal represented less than 0.3% of total emissions.
Category 13 – Downstream leased assets	No leases, so excluded.
Category 14 – Franchises	Synlait does not operate any franchises.
Category 15 – Investments	Synlait has a 25% shareholding in Sichuan Nutritional Foods. As Synlait is the exclusive supplier and manufacturer of their infant formula, we estimate that the emissions linked to the manufacturing of their products would already be captured in our GHG footprint.

5. METHODOLOGIES AND UNCERTAINTIES

The inventory is prepared in accordance with the requirement of the Greenhouse Gas Protocol and ISO 14064-1:2018 specification. Where relevant, the inventory is aligned with industry or sector best practice for emissions measurement and reporting.

An operational control consolidation approach is used to account for emissions.

5.1 Emissions Source Data Processes and Uncertainties

Table 10 below provides an overview of how data were collected for each GHG emissions source, the source of the data and an explanation of any uncertainties or assumptions made.

Table 10: Emissions Source Data Processes and Uncertainties

Emissions Sources	Scope	Business Unit Reported	Purpose	Data Process/Uncertainties
LPG	1	Synlait Dunsandel, Synlait Auckland, Synlait Pokeno, Westney Road, Dairyworks Hornby, Temuka Cheese Plant	Mainly used for forklifts	The supplier provides a monthly usage report.
Coal	1	Synlait Dunsandel	Process heat	Sub-bituminous coal. Weighbridge tonnage recorded from supplier invoices on a monthly basis.
Diesel – Milk Tankers	1	Synlait Dunsandel, Synlait Pokeno, Temuka Cheese Plant	Road transport of milk from farm to manufacturing sites, and transfer of milk between factories	Our transportation partner is contracted to use their vehicles for milk transportation – they are not owned by Synlait. However, as most milk tankers have Synlait branding and do transport for Synlait exclusively, diesel used for milk transportation has been allocated to Scope 1. A system is in place at Hilton Haulage to estimate diesel usage (in litres) that is then provided to Synlait.
Diesel – Boiler	1	Dairyworks Hornby, Temuka Cheese Plant	Process heat	Monthly invoices provide the amount of fuel purchases in litres.
Distributed Natural Gas	1	Synlait Auckland, Synlait Pokeno	Process heat	Monthly invoices provide natural gas consumption data in kWh and in GJ.
Company Cars	1	Synlait Corporate, Dairyworks Corporate	Business travel	Fuel card information provides fuel purchases in litres by fuel type.
Synlait Bus	1	Synlait Dunsandel	Warehouse operations and employee transportation	Diesel purchases are provided in litres at the end of each financial year.

Emissions Sources	Scope	Business Unit Reported	Purpose	Data Process/Uncertainties
Packing Gas	1	Synlait Dunsandel, Synlait Auckland, Synlait Pokeno, Dairyworks Hornby, Temuka Cheese Plant	Used for packing	The suppliers provide a monthly usage report.
Rental Cars	1	Synlait Corporate, Dairyworks Corporate	Business travel	The suppliers provide a monthly usage report. The report includes travel distances and class of rental vehicle. Dairyworks switched to the same travel booking supplier as Synlait in January 2021 which provided consistent reporting.
Refrigerants	1 & 3	Synlait Dunsandel, Synlait Auckland, Synlait Pokeno, Westney Road, Dairyworks Hornby, Temuka Cheese Plant	All units and systems that use refrigerants such as air-conditioning, chillers, fridges	Suppliers confirm whether or not any top-ups have occurred and, if so, provide amount and type of gas topped up. All refrigerants are in Scope 1 except for Westney Road's which are in Scope 3.
Electricity	2	Synlait Dunsandel, Synlait Auckland, Synlait Pokeno, Westney Road, Dunsandel Farms, Dairyworks Hornby, Temuka Cheese Plant, Gerald Connolly Place	Office and manufacturing use	The supplier provides a monthly usage report.
Gas and Electricity Transmission Losses	3	Synlait Dunsandel, Synlait Auckland, Synlait Pokeno, Westney Road, Dairyworks Hornby, Temuka Cheese Plant, Gerald Connolly Place	Losses during transmission	Default transmission loss amount is used which is incorporated into the emissions factor provided by MfE and applied to total electricity and natural gas kWh use.
Waste to Landfill	3	Synlait Dunsandel, Synlait Auckland, Synlait Pokeno, Westney Road, Dairyworks Hornby, Temuka Cheese Plant, Gerald Connolly Place	Manufacturing and office waste	Waste data is accessed directly through the waste management provider's online portal. Waste for the Gerald Connolly warehouse, which is leased by Dairyworks, is included in Dairyworks' total waste. The mixed waste non methane recovery emissions factor is applied to all sites.

Emissions Sources	Scope	Business Unit Reported	Purpose	Data Process/Uncertainties
Coal and DAF Transport	3	Synlait Dunsandel, Synlait Pokeno	Transportation of coal and DAF sludge	Coal: road freight for transporting coal to Dunsandel is estimated based on weight of coal purchased and distance to Dunsandel using the road freight emissions factor and included in Scope 3. DAF: the supplier records km and converts to diesel usage (litres) based on average fuel efficiency for each vehicle type.
Outbound Freight (Sea, Road and Air)	3	Synlait Corporate, Dairyworks Corporate	Delivery of finished goods to national and international customers	Synlait – Distances in km are calculated from origin and destination countries and multiplied by the weight of goods delivered to obtain tonnes per kilometre (TKM). Information on the exact discharge port is not readily available therefore the first alphabetically listed port was used for distance calculation. We have made the following assumptions: 1/ all sea consignments depart from Lyttleton Port, 2/ all road consignments depart from Dunsandel, 3/ all air consignments depart from Christchurch International Airport, 4/ consignments travel directly to final destination, 5/ the road components for sea and air freight (from original location to port and from port to final destination) are 50km at each end unless the carrier is the rail transport provider from Synlait Dunsandel to Lyttleton Port (the emissions from this carrier are included in rail freight), making it an estimated 100km of road freight, and 6/ all air consignments are >3700km therefore the long haul emissions factor is to be used. Dairyworks – Sales reports have been used to export the outbound sea and road freight. Insufficient data is available to calculate air freight and it is estimated to be de minimis.

Emissions Sources	Scope	Business Unit Reported	Purpose	Data Process/Uncertainties
Inbound Freight (Sea, Road and Air)	3	Synlait Corporate, Dairyworks Corporate	Procurement of ingredients and packaging materials	Synlait – Distances in km are calculated from origin and destination countries and multiplied by the weight of goods delivered to obtain tonnes per kilometre (TKM). Information on the exact discharge port is not readily available therefore the first alphabetically listed port was used for distance calculation. We have made the following assumptions: 1/ all sea consignments arrive at Lyttleton Port, 2/ all air consignments arrive at Christchurch International Airport, 3/ all road consignments travel the average distance of 358km (this is the average distance from major cities in New Zealand to Dunsandel), 4/ the road components for sea and air freight (from original location to port and from port to final destination) are 50km at each end, making it an estimated 100km of road freight and 5/ all air consignments are >3700km therefore the long haul emissions factor is to be used. There was an incomplete dataset for June and July 2022 due to resource shortages in FY22. August 2021 to May 2022 data was extrapolated using FY21 seasonal purchase trending to model emissions for June and July 2022. Dairyworks – Sales reports have been used to export the outbound sea and road freight. Insufficient data is available to calculate air freight and it is estimated to be de minimis.
Inter-Warehouse Freight (Road and Sea)	3	Synlait Corporate	Movement of goods between sites and warehousing facilities	The total weights moved between each site are multiplied by distance between the sites. Assumed all inter-island transfers travelled by sea and are transported to and from the nearest port to the site.
Rail Freight (Inbound, Outbound and Inter-Warehouse)	3	Synlait Corporate	Movement of goods between Lyttleton Port and Dunsandel	The rail siding at Synlait Dunsandel became operational in May 2021. Trip data is obtained from internal recording via an excel query.
Car Mileage	3	Synlait Corporate, Dairyworks Corporate	Staff use of own car for business travel	Km travelled are calculated from staff mileage claims.

Emissions Sources	Scope	Business Unit Reported	Purpose	Data Process/Uncertainties
Staff Commute	3	Synlait Corporate, Dairyworks Corporate	Staff travel from home to work and back home	Current financial year FTE head count for each site was used to extrapolate on results from a company-wide survey that collected data on type of vehicle used, distance travelled to most frequent site, and number of days worked on-site per week. This survey had an approximate response rate of 50%. Staff who registered an electric vehicle (for charging on site) and staff who travel by the Synlait provided bus are excluded from the staff commute totals. Average daily staff that travel on Synlait bus was estimated using two months of driver pick-up records. For Synlait staff, due to the site restrictions in place during the height of the COVID-19 pandemic, the survey included the option to detail the number of months worked from home in FY22. This was factored into the emissions during extrapolation.
Air Travel and Hotels	3	Synlait Corporate, Dairyworks Corporate	Business travel	The supplier provides a monthly usage report. The report includes travel distances and class of travel. Hotel information includes location and number of nights. Dairyworks switched to the same travel booking supplier as Synlait in January 2021 which provided consistent reporting.
Farmer Suppliers	3	Synlait Corporate	Supply of raw milk	Emissions from farmer suppliers are GHG emissions from the dairy farms that Synlait has a direct supply agreement with, for the purchase of raw milk. They do not include emissions from other agricultural products or dairy products purchased from other suppliers for processing. Farmer supplier emissions are directly obtained from OVERSEER®, a farm management software that models agricultural GHG emissions based on various parameters. For more details, please see the dedicated section below.

5.2 Farmer Supplier Emissions

Scope: Farmer emissions are Scope 3 GHG emissions from the dairy farms that have an existing supplier contract with Synlait during the reporting period, for the supply of raw milk. In FY22, Synlait's farmer suppliers were located in the regions of Canterbury and Waikato.

Exclusions: New farmer suppliers who come on after 31 May of the reporting year are excluded, as they will have only supplied milk to Synlait for one month. Emissions from dairy cows when they are outside of the farm or wintering, i.e., when they are removed from milking platforms and sent to other farms during winter, are excluded. Emissions from agricultural products or dairy products purchased from other suppliers for processing (with whom there is no direct supply agreement) are also excluded.

Measurement period: The measurement period used for farmer emissions is slightly different to the organisational measurement period: it follows OVERSEER's reporting period, which is 1 July to 30 June.

Modelling tool used: Farmer supplier emissions are directly obtained from OVERSEER®, a New Zealand farm management software that models agricultural GHG emissions based on various parameters, such as the production of effluent, the application of nitrogen fertiliser and the supplements provided to the cows. OVERSEER® is a widely used tool in New Zealand, also used as a regulatory tool by certain regional councils for farm resource consents.
More information can be found here: https://www.overseer.org.nz/

Data process:

1. Farm data (such as the nutrient budget) is entered into OVERSEER® by the farm manager or their consultant with the help of Synlait Sustainability Advisors and/or contracted consultants.

2. Once the current year's data has been entered into OVERSEER®, Synlait staff will check that farms have activated software updates from OVERSEER®, which will update all farm calculations, including GHG emissions for all measurement periods (including updates to previous years).

3. The modelled farm data, including GHG emissions, is then extracted from OVERSEER® using the OVERSEER® API to a consolidation spreadsheet (one for Canterbury and one for Waikato).

4. Where FY data is not available for a farm (for example, it has ceased to supply Synlait; it does not have an active OVERSEER® account; or data is not available by our internal cut-off date), previous year's data is used if required.

Emission factor: The quantification of GHG emissions is conducted via the OVERSEER® software.

Quantification of GHG type: Each source of GHG data, broken down by type of GHG, is also extracted from OVERSEER®. This enables Synlait to calculate the average proportion of CO2, CH4 and N2O gases within total GHG emissions across all dairy farms.

5.3 Emissions Factors

Emissions factors released by the NZ Ministry for the Environment (MfE) are used where available.
Where there are no appropriate MfE factors, DEFRA (now DBEIS) factors are used.

5.4 Base Year Recalculation Policy

Base year data may need to be revised when material changes occur and have an impact on calculated emissions. Our policy is to recalculate base year data and indicate in a footnote any recalculation or re-statement of previously disclosed data, in any of the following situations:

- Changes are estimated to represent more than 5% of Scope 1, 2 or 3 emissions; or
- There are significant changes to our reporting boundaries, including the outsourcing or insourcing of emitting activities; or
- There are significant changes in our calculation methodology (such as an update in OVERSEER®'s software); or
- We discover significant errors, or a number of cumulative errors that are collectively significant, in our previous disclosures.

5.5 GHG Information Management and Monitoring Procedures

GHG emissions are measured annually and compared against the base year. Each source of GHG emissions has an Excel spreadsheet which includes raw data and calculated GHG emissions. A master spreadsheet performs the consolidation of all GHG emissions at group level.

This document provides an overview of boundaries and scopes, data collection processes and GHG measurement methodologies for each emission source and is updated each year. More details are available in each of the GHG emissions spreadsheets.

Synlait's GHG Emissions Inventory Report, associated documents and spreadsheets are prepared and reviewed by the Synlait sustainability team. Synlait provides appropriate training to any new staff that has responsibility for this role to ensure accuracy and consistency of the GHG calculations.

5.6 Other Emissions – HFC, PFC, NF3 and SF6

Air conditioning units and chillers contain HFCs. The sites have not reported top-ups of gases for this reporting period. Air conditioning is excluded from the inventory where offices are leased.

There are no operations that use PFC, NF3 or SF6.

5.7 Other Emissions – Biomass

No biomass was combusted by Synlait during the FY22 reporting period.

6. GHG INVENTORY ASSURANCE

Deloitte Limited has been appointed as the third-party independent assurance provider. A reasonable level of assurance has been given over the Scope 1 and 2 assertions and quantifications included in this report and a limited level of assurance over the Scope 3 assertions and quantifications.

Person responsible:	Simon Robertson, Board Chair
	
Dated:	18 January 2023

Deloitte.

INDEPENDENT REASONABLE AND LIMITED ASSURANCE REPORT TO THE BOARD OF DIRECTORS OF SYNLAIT MILK LIMITED

Report on Greenhouse Gas Emissions Inventory Report

We have undertaken a reasonable assurance engagement in relation to Scope 1 and 2 emissions and a limited assurance engagement in relation to Scope 3 emissions within the Greenhouse Gas Inventory Report (the 'Inventory Report') of Synlait Milk Limited and its subsidiaries ('Synlait Milk Limited') for the year ended 31 July 2022, comprising the Emissions Inventory and the explanatory notes set out on page 1 to 16.

The Inventory Report provides information about the greenhouse gas emissions of Synlait Milk Limited for the year ended 31 July 2022 and is based on historical information. This information is stated in accordance with the requirements of International Standard ISO 14064-1 Greenhouse gases – Part 1: *Specification with guidance at the organisation level for quantification and reporting of greenhouse gas emissions and removals* ('ISO 14064-1:2018') and the Greenhouse Gas Protocol: *A Corporate Accounting and Reporting Standard (2004)* ('the GHG Protocol').

Board of Directors' Responsibility

The Board of Directors are responsible for the preparation of the Inventory Report, in accordance with ISO 14064-1:2018 and the GHG Protocol. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation of an Inventory Report that is free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on Scope 1 and 2 emissions and a limited assurance conclusion on Scope 3 emissions in the Inventory Report based on the evidence we have obtained. We conducted our reasonable and limited assurance engagements in accordance with International Standard on Assurance Engagements (New Zealand) 3410: *Assurance Engagements on Greenhouse Gas Statements* ('ISAE (NZ) 3410'), issued by the New Zealand Auditing and Assurance Standards Board. That standard requires that we plan and perform the engagement so as to obtain reasonable assurance that Scope 1 and 2 emissions within the Inventory Report, and limited assurance that Scope 3 emissions within the Inventory Report are free from material misstatement, respectively.

Reasonable assurance for Scope 1 and 2 emissions

A reasonable assurance engagement undertaken in accordance with ISAE (NZ) 3410 involves performing procedures to obtain evidence about the quantification of emissions and related information in the Inventory Report. The nature, timing and extent of procedures selected depend on the assurance practitioner's judgement, including the assessment of the risks of material misstatement, whether due to fraud or error, in the Inventory Report. In making those risk assessments, we considered internal control relevant to the Company's preparation of the Inventory Report. We also:

- Assessed the suitability in the circumstances of the Synlait Milk Limited's use of ISO 14064-1:2018 and the GHG Protocol as the basis for preparing the Inventory Report
- Evaluated the appropriateness of quantification methods and reporting policies used, and the reasonableness of estimates made by the Synlait Milk Limited; and
- Evaluated the overall presentation of the Inventory Report.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our reasonable assurance opinion in respect of the Scope 1 and 2 emissions.

Limited assurance for Scope 3 emissions

A limited assurance engagement undertaken in accordance with ISAE (NZ) 3410 involves assessing the suitability in the circumstances of the Company's use of ISO 14064-1:2018 and the GHG Protocol as the basis for the preparation of the inventory report, assessing the risks of material misstatement of the inventory report whether due to fraud or error, responding to the assessed risks as necessary in the circumstances, and evaluating the overall presentation of the inventory report. A limited assurance engagement is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks.

The procedures we performed were based on our professional judgement and included enquiries, observations of processes performed, inspection of documents, analytical procedures, evaluating the appropriateness of quantification methods and reporting policies, and agreeing or reconciling with underlying records.

Given the circumstances of the engagement, in performing the procedures listed above we:

- Through enquiries, obtained an understanding of Synlait Milk Limited's control environment and information systems relevant to emissions quantification and reporting, but did not evaluate the design of particular control activities, obtain evidence about their implementation or test their operating effectiveness.
- Evaluated whether Synlait Milk Limited's methods for developing estimates are appropriate and had been consistently applied. However, our procedures did not include testing the data on which the estimates are based or separately developing our own estimates against which to evaluate Synlait Milk Limited's estimates.
- Reviewed adherence to the principles and requirements outlined in ISO 14064-1:2018 and the GHG Protocol, which included a consideration of completeness.

Inherent Limitations

Scope 1, 2 and 3 emissions

Non-financial information, such as that included in Synlait Milk Limited Inventory Report, is subject to more inherent limitations than financial information, given both its nature and the methods used and assumptions applied in determining, calculating and sampling or estimating such information. Specifically, GHG quantification is subject to inherent uncertainty because of incomplete scientific knowledge used to determine emissions factors and the values needed to combine emissions of different gases.

As the procedures performed for this engagement are not performed continuously throughout the relevant period and the procedures performed in respect of the Company's compliance with ISO 14064-1:2018 and the GHG Protocol are undertaken on a test basis, our assurance engagement cannot be relied on to detect all instances where the company may not have complied with the ISO 14064-1:2018 and the GHG Protocol. Because of these inherent limitations, it is possible that fraud, error or non-compliance may occur and not be detected.

The Company uses publicly available emissions factors in preparation of the Greenhouse Gas Inventory. We have agreed these to their source, but the scope of the engagement does not provide assurance over the emissions factors or the agricultural science used to determine the emissions factors.

Scope 3 emissions

For the Scope 3 emissions, we note that a limited assurance engagement is not designed to detect all instances of non-compliance with the ISO 14064-1:2018 and the GHG Protocol, as it generally comprises making enquires, primarily of the responsible party, and applying analytical and other review procedures.

In addition, Scope 3 emissions relating to on-farm emissions (especially fertiliser and methane production for dairy cows) are inherently uncertain due to the fact that they arise from natural processes which may vary depending on contributing factors.

Our Independence and Quality Control

We have complied with the independence and other ethical requirements of Professional and Ethical Standard 1 *International Code of Ethics for Assurance Practitioners (including International Independence Standards)* (New Zealand) ('PES-1') issued by the New Zealand Auditing and Assurance Standards Board, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

The firm provides services related to taxation compliance, data quality of other sustainability metrics and KPI's, financial and reporting advisory and consulting support services. Other than in our capacity as assurance provider and the provision of these services, we have no relationship with or interests in the Company or any of its subsidiaries.

The firm applies Professional and Ethical Standard 3 (Amended): *Quality Control for Firms that Perform Audits and Reviews of Financial Statements, and Other Assurance Engagements* issued by the New Zealand Auditing and Assurance Standards Board, and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Use of Report

Our assurance report is made solely to the directors of the Company in accordance with the terms of our engagement. Our work has been undertaken so that we might state to the directors those matters we have been engaged to state in this report and is for no other purpose. We accept or assume no duty, responsibility or liability to any other party in connection with the report or this engagement, including without limitation, liability for negligence in relation to the conclusions expressed in this report.

Reasonable Assurance Opinion for Scope 1 and 2 Emissions

In our opinion, the Scope 1 and 2 emissions of Synlait Milk Limited within the Inventory Report for the year ended 31 July 2022 have been prepared, in all material respects, in accordance with the requirements of ISO 14064-1:2018 and the GHG Protocol.

Limited Assurance Conclusion for Scope 3 Emissions

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that Synlait Milk Limited's Scope 3 emissions within the Inventory Report for the year ended 31 July 2022 are not prepared, in all material respects, in accordance with the requirements of ISO 14064-1:2018 and the GHG Protocol.

Deloitte Limited

Chartered Accountants
18 January 2023
Auckland, New Zealand

This assurance report relates to the Greenhouse Gas Inventory Report of Synlait Milk Limited for the year ended 31 July 2022 included on Synlait Milk Limited's website. Synlait Milk Limited is responsible for the maintenance and integrity of Synlait Milk Limited's website. We have not been engaged to report on the integrity of Synlait Milk Limited's website. We accept no responsibility for any changes that may have occurred to the Greenhouse Gas Inventory Report since they were initially presented on the website. The assurance report refers only to the Greenhouse Gas Inventory Report named above. It does not provide an opinion on any other information which may have been hyperlinked to/from these Greenhouse Gas Inventory Report. If readers of this report are concerned with the inherent risks arising from electronic data communication they should refer to the published hard copy of the Greenhouse Gas Emissions Inventory Report and related assurance report dated 18 January 2023 to confirm the information included in the Greenhouse Gas Inventory Report presented on this website.