

FACTSHEET

GHG Calculator Example Farm

May 2022



1) Land Area

Finishing-Breeding Farm in Canterbury

Total: 1174ha Effective: 1100ha

Vegetation:

- 35ha exotic forest at open; 5ha harvested this year
- 17ha Indigenous forest – established
- 21ha indigenous shrubland – less than 30 years old



2) Fertiliser, Lime and Dolomite

Type	Total Amount	Kg elemental N	Type
Lime	210 tonnes		
Dolomite	52 tonnes		
Urea	21 tonnes	9660	Urea without urease inhibitor
Cropmaster 20	17 tonnes	3196	Non-urea N fertiliser
Superphosphate 13S	202 tonnes		Fertiliser
Cropzeal Boron Boost	9 tonnes	1485	Non-urea N fertiliser
N-Protect	8 tonnes	3672	Urea with urease inhibitor



3) Stock numbers

As per Trading Accounts (page 2)

In addition:

- 500 mixed-age ewes are grazed off-farm all year, in a share-farming arrangement.
- 242 mixed-age dairy cows wintered in 2021. Arrive 9 June, depart 20 July. No deaths.
- 233 mixed-age dairy cows wintered in 2022. Arrive 8 June, depart 15 July. No deaths.
- 121 R1 dairy heifers being grazed, on hand at opening, leave 15 May 2022.
- 122 dairy heifer calves arrive to be grazed on 15 December 2021.
- All sheep sold prime.
- All R2 cattle and older cattle sold prime, all R1s sold store.

Stock Reconciliation . 1/7/21 - 30/6/22

Sheep Trading Account	Qty
Sales	
Lambs	9156
Mixed Age ewes	1850
	11006
Purchases	
Lambs - mixed sex	506
2th Ewes	579
Breeding Rams	15
	1100
Opening Stock	
Ewe hoggets	1315
2th ewes	1298
3 and 4 yr Ewes	2916
5 and 6 yr Ewes	2917
Rams	85
Total Opening Stock	8531
Closing Stock	
Ewe hoggets	1278
Trade hoggets	506
2th ewes	1297
3 and 4 yr Ewes	1816
5 and 6 yr Ewes	3805
Rams	88
Total Closing Stock	8790
Sheep Reconciliation of Numbers	
Opening Stock	8531
Plus	
Purchases	1100
Natural Increase	10579
	11679
Less	
Sales	11006
Deaths & Missing	414
	11420
Closing Stock Numbers	8790

Cattle Trading Account	Qty
Sales	
Rising 2yr Heifers	31
Rising 2yr Steers	112
Rising 2yr Bulls	4
Mixed Age Cows	48
Breeding Bulls	2
	197
Purchases	
Breeding Bulls	2
	2
Opening Stock	
Rising 1yr Heifers	131
Rising 1yr Steers	120
Rising 1yr Bulls	34
Rising 2yr Heifers	91
Rising 2yr Steers	114
Rising 2yr Bulls	4
Mixed Age Cows	220
Breeding Bulls 5	5
Total Opening Stock	719
Closing Stock	
Rising 1yr Heifers	146
Rising 1yr Steers	118
Rising 1yr Bulls	24
Rising 2yr Heifers	130
Rising 2yr Steers	117
Rising 2yr Bulls	34
Mixed Age Cows	227
Breeding Bulls	5
Total Closing Stock	801
Cattle Reconciliation of Numbers	
Opening Stock	719
Plus	
Purchases	2
Natural Increase	288
	290
Less	
Sales	197
Deaths & Missing	11
	208
Closing Stock Numbers	801

Greenhouse Gas Emissions Calculation

Your farm

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FARM DETAIL

Farm name	<input type="text" value="Example Farm 2022"/>	Total farm area (ha)	<input type="text" value="1174"/> ha
Regional council	<input type="text" value="Environment Canterbury"/>	Grazed area (ha)	<input type="text" value="1100"/> ha
Production Region [?]	<input type="text" value="Marlborough-Canterbury"/>	Analysis date	<input type="text" value="26"/> <input type="text" value="05"/> <input type="text" value="2022"/>
Farm class [?]	<input type="text" value="South Island Finishing Breeding"/>	Analysis season	<input type="text" value="2021"/> - 2022
Farm Trading account GST number [?]	<input type="text" value="123-321-123"/>	GST numbers are used solely for the purpose of counting farm businesses that have completed this calculation. Your GST number and associated information are never shared with anyone	

FERTILISER AND LIME USE

This information can be found in the summary reports major fertiliser suppliers send out in May. Fertiliser here refers only to fertiliser containing nitrogen (N). Figures should be for total use (not per hectare).

For fertiliser analysis please see Appendix 3 in the user guide

	Product weight (kg)	Elemental N weight (kg)
Non-urea nitrogen fertiliser		<input type="text" value="4681"/> kg
Urea without urease inhibitor		<input type="text" value="9660"/> kg
Urea with urease inhibitor [*]		<input type="text" value="3672"/> kg
Lime [?]	<input type="text" value="210000"/> kg	
Dolomite	<input type="text" value="52000"/> kg	

^{*} SustainN, Agrotain, N-Protect

VEGETATION (EXOTIC AND INDIGENOUS)

Enter the total area of woody vegetation on your farm that will occupy more than 30% canopy cover. 'Forest' is able to reach a mature height of at least 5 metres. 'Shrubland' is the woody vegetation under 5 metres. Do not count forest where carbon credits have been sold. Note you can include areas under 1 hectare in this calculation.

These vegetation types are indicative of all possibilities and will be updated when agricultural emissions pricing policies, including eligibility for recognition of sequestration, are confirmed.

	Area at open (ha)	Harvested this year (ha)
Exotic forest (28 years or younger)	<input type="text" value="35.0"/> ha	<input type="text" value="5.0"/> ha
Indigenous forest - regenerating natural forest (less than 100 years old)	<input type="text" value="0.0"/> ha	
Indigenous forest - established natural forest (more than 100 years old)	<input type="text" value="17.0"/> ha	<input type="text" value="0.0"/> ha
Shrubland (less than 30 years old)	<input type="text" value="21.0"/> ha	
Shrubland (more than 30 years old)	<input type="text" value="0.0"/> ha	<input type="text" value="0.0"/> ha

← RETURN TO MENU

LIVESTOCK BALANCES →

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In this tab, all animals must be aged up a livestock class at the season's 'close' – if you're using opening and closing numbers from financial statements this should already be done, but if you're not using financial statements you'll need to age up animals, e.g. retained lambs become hoggets at close, Heifers R2 become MA Cows.

SHEEP

STOCK	OWNED ON-FARM (HEAD)		OWNED OFF-FARM (HEAD)		GRAZED ON-FARM (HEAD)	
	AT OPEN	AT CLOSE	AT OPEN	AT CLOSE	AT OPEN	AT CLOSE
MA Ewes	5333	5121	500	500	0	0
2t Ewes	1298	1297	0	0	0	0
Hoggets Ewe	1315	1278	0	0	0	0
Hoggets Ram	0	0	0	0	0	0
Hoggets Other	0	506	0	0	0	0
Wethers	0	0	0	0	0	0
Breeding Rams	85	88	0	0	0	0
TOTAL	8,031	8,290	500	500	0	0

BEEF CATTLE

STOCK	OWNED ON-FARM (HEAD)		OWNED OFF-FARM (HEAD)		GRAZED ON-FARM (HEAD)	
	AT OPEN	AT CLOSE	AT OPEN	AT CLOSE	AT OPEN	AT CLOSE
MA Cows	220	227	0	0	0	0
Heifers R2	91	130	0	0	0	0
Heifers R1	131	146	0	0	0	0
Bull Beef R1	34	24	0	0	0	0
Bull Beef R2	4	34	0	0	0	0
Bull Beef R3	0	0	0	0	0	0
Steers R1	120	118	0	0	0	0
Steers R2	114	117	0	0	0	0
Steers R3	0	0	0	0	0	0
Breeding Bulls	5	5	0	0	0	0
TOTAL	719	801	0	0	0	0

DAIRY CATTLE

Represents owned and non-owned (grazing) Dairy cattle that are not currently being milked.

STOCK	OWNED ON-FARM (HEAD)		OWNED OFF-FARM (HEAD)		GRAZED ON-FARM (HEAD)	
	AT OPEN	AT CLOSE	AT OPEN	AT CLOSE	AT OPEN	AT CLOSE
MA Cows	0	0	0	0	242	233
Heifers R2	0	0	0	0	0	0
Heifers R1	0	0	0	0	121	122
TOTAL	0	0	0	0	363	355

Greenhouse Gas Emissions Calculation


Your farm Livestock balances **Grazing movements** Livestock movements Results

ON-FARM GRAZING

'On-farm grazing' refers to animals this business does not own that are brought onto your farm for only part of their lifespan – such as dairy heifers, dairy cows over winter, or lambs finished on contract. If you have no on-farm grazing, click the  button to remove this section.

STOCK ON	TALLY ARRIVE	TALLY LEAVE	ON HAND AT OPEN	DATE ARRIVED	ON HAND AT CLOSE	DATE LEFT	TIME ON FARM
Dairy MA Cows <input type="text"/>	<input type="text" value="0"/>	<input type="text" value="242"/>	<input checked="" type="checkbox"/>	<input type="text" value="DD"/> <input type="text" value="MM"/> <input type="text" value="YYYY"/>	<input type="checkbox"/>	<input type="text" value="20"/> <input type="text" value="07"/> <input type="text" value="2021"/>	5% <input type="text"/>
Dairy MA Cows <input type="text"/>	<input type="text" value="233"/>	<input type="text" value="0"/>	<input type="checkbox"/>	<input type="text" value="08"/> <input type="text" value="06"/> <input type="text" value="2022"/>	<input checked="" type="checkbox"/>	<input type="text" value="DD"/> <input type="text" value="MM"/> <input type="text" value="YYYY"/>	6% <input type="text"/>
Dairy Calves & W... <input type="text"/>	<input type="text" value="122"/>	<input type="text" value="0"/>	<input type="checkbox"/>	<input type="text" value="15"/> <input type="text" value="12"/> <input type="text" value="2021"/>	<input checked="" type="checkbox"/>	<input type="text" value="DD"/> <input type="text" value="MM"/> <input type="text" value="YYYY"/>	54% <input type="text"/>
Dairy Heifers R1 <input type="text"/>	<input type="text" value="0"/>	<input type="text" value="121"/>	<input checked="" type="checkbox"/>	<input type="text" value="DD"/> <input type="text" value="MM"/> <input type="text" value="YYYY"/>	<input type="checkbox"/>	<input type="text" value="15"/> <input type="text" value="05"/> <input type="text" value="2022"/>	87% <input type="text"/>

OFF-FARM GRAZING

'Off-farm grazing' refers to animals this business owns that spend their main productive life on your farm, but which have been sent to another farm to graze – such as ewes sent for grazing in a drought or home-bred lambs being finished elsewhere on contract. If this doesn't apply to any of your stock, click the  button to remove this section.

STOCK OFF	TALLY DEPART	TALLY RETURN	OFF FARM AT OPEN	DATE DEPARTED	OFF FARM AT CLOSE	DATE RETURNED	TIME ON FARM
Sheep MA Ewes <input type="text"/>	<input type="text" value="500"/>	<input type="text" value="500"/>	<input checked="" type="checkbox"/>	<input type="text" value="DD"/> <input type="text" value="MM"/> <input type="text" value="YYYY"/>	<input checked="" type="checkbox"/>	<input type="text" value="DD"/> <input type="text" value="MM"/> <input type="text" value="YYYY"/>	0% <input type="text"/>

Greenhouse Gas Emissions Calculation

Your farm Livestock balances Grazing movements **Livestock movements** Results

If animals open in a livestock class, they need to be sold within the same livestock class – e.g. hoggets at open need to be sold as hoggets, not lambs. If you record animals in a different class, your loss value and overall GHG calculation will be inaccurate. For animals retained, all animals should be aged up as in previous 'Livestock balances' tab – e.g. lambs retained over balance date should show as hoggets at close, Heifers R2 become MA Cows. Losses are automatically calculated – if results show as negative it is likely due to an ageing up issue as above.

SHEEP

STOCK	ON HAND AT OPEN	BIRTHS	PURCHASES	SALES		ON-FARM GRAZING		OFF-FARM GRAZING		USED ON FARM	ON HAND AT CLOSE
				STORE	PRIME	ARRIVE	LEAVE	DEPART	RETURN		
MA Ewes	5,333		0	0	1850					0	5,121
2L Ewes	1,298		579	0	0					0	1,297
Hoggets Ewe	1,315		0	0	0					0	1,278
Lambs (incl. hogget lambs)		10579	506	0	9156					0	
Hoggets Ram	0		0	0	0					0	0
Hoggets Other	0		0	0	0					0	506
Wethers	0		0	0	0					0	0
Breeding Rams	85		15	0	0					0	88
TOTAL	8,031	10,579	1,100	0	11,006					0	8,290

TOTAL SALES: 11,006

LOSSES: Adult: 3.1% (269 head)
Lamb: 1.3% (145 head)

BEEF CATTLE

STOCK	ON HAND AT OPEN	BIRTHS	PURCHASES	SALES		ON-FARM GRAZING		OFF-FARM GRAZING		USED ON FARM	ON HAND AT CLOSE
				STORE	PRIME	ARRIVE	LEAVE	DEPART	RETURN		
MA Cows	220		0	0	48					0	227
Heifers R2	91		0	0	31					0	130
Heifers R1	131		0	0	0					0	146
Calves & Weaners		288	0	0	0					0	
Bull Beef R1	34		0	0	0					0	24
Bull Beef R2	4		0	0	4					0	34
Bull Beef R3	0		0	0	0					0	0
Steers R1	120		0	0	112					0	118
Steers R2	114		0	0	0					0	117
Steers R3	0		0	0	0					0	0
Breeding Bulls	5		2	0	2					0	5
TOTAL	719	288	2	0	197					0	801

TOTAL SALES: 197

LOSSES: Adult: 1.5% (11 head)
Calf/Weaner: 0.0% (0 head)

DAIRY CATTLE

STOCK	ON HAND AT OPEN	BIRTHS	PURCHASES	SALES		ON-FARM GRAZING		OFF-FARM GRAZING		USED ON FARM	ON HAND AT CLOSE
				STORE	PRIME	ARRIVE	LEAVE	DEPART	RETURN		
MA Cows	242		0	0	0	233	242			0	233
Heifers R2	0		0	0	0					0	0
Heifers R1	121		0	0	0		121			0	122
Calves & Weaners		0	0	0	0	122				0	
TOTAL	363	0	0	0	0	355	363			0	355

TOTAL SALES: 0

LOSSES: Adult: 0.0% (0 head)
Calf/Weaner: 0.0% (0 head)

Greenhouse Gas Emissions Calculation

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Greenhouse Gas Emissions Calculation for Example Farm 2022

Farm emissions		
Source		Kilograms of Carbon dioxide equivalents CO ₂ -e ⁴
Livestock emissions	Dairy cattle (incl. grazing dairy)	268,118
	Beef cattle	1,344,592
	Sheep	3,656,911
	Deer	0
Fertiliser and lime use	Non-urea nitrogen fertiliser	25,277
	Urea without urease inhibitor	48,988
	Urea with urease inhibitor	17,848
	Limestone	92,400
	Dolomite	24,783
Total kg		5,478,918
Kg / total ha		4,667

Kilograms of greenhouse gases		
Carbon dioxide CO ₂	Methane CH ₄	Nitrous oxide N ₂ O
	8,303	203
	41,638	1,019
	125,239	1,765
	0	0
		85
15,400		113
5,854		40
92,400		
24,783		
138,437	175,180	3,225
118	149	3

Tonnes of carbon dioxide equivalents CO ₂ -e	
Carbon dioxide CO ₂	138
Methane CH ₄ (tonnes CH ₄ x 25)	4,379
Nitrous oxide N ₂ O (tonnes N ₂ O x 298)	961
Tonnes (X)	5,479
Tonnes / total ha	4.67

Tonnes of greenhouse gases		
Carbon dioxide CO ₂	Methane CH ₄	Nitrous oxide N ₂ O
138	175	3

Deforestation emissions		
Source		Kilograms of Carbon dioxide equivalents CO ₂ -e
Exotic forest	Harvest and deforestation	4,733,025
Indigenous forest	Established or regenerated indigenous forest deforested	0
Shrubland	Established or regenerated shrubland deforested	0
Total kg		4,733,025
Tonnes (Y)		4,733

Greenhouse Gas Emissions Calculation

Your farm Livestock balances Grazing movements Livestock movements **Results**

Greenhouse Gas Emissions Calculation for Example Farm 2022

Vegetation offsets		
Source		Kilograms of Carbon dioxide equivalents CO ₂ -e
Exotic forest	28 years of carbon storage, averaged per year	1,183,245
Indigenous forest	Combined total carbon stock for regenerating (less than 100 years old) and established (more than 100 years old) indigenous forests	0
Shrubland	Total carbon stock associated with shrubland older and younger than 30 years old	36,183
	Total kg	1,219,428
	Tonnes (Z)	1,219

Estimated net CO ₂ emissions (t CO ₂ -e) = X + Y - Z	8,993
Estimated net CO ₂ emissions / total ha (t CO ₂ -e)	7.66

* CO₂-e (Carbon dioxide equivalents) are calculated using GWP100 (global warming potential) from the IPCC, 2007, Fourth Assessment Report

← LIVESTOCK MOVEMENTS

SAVE RESULTS

For further information:

Greenhouse Gas Calculator User Guide on B+LNZ

Knowledge Hub - www.knowledgehub.co.nz
Search "B+LNZ GHG Calculator User Guide"

www.beeflambnz.com/knowledge-hub/PDF/-ghg-calculator-user-guide.pdf

GHG Calculator Userguide Videos: visit B+LNZ's YouTube channel for a series of videos demonstrating how to use the GHG Calculator:

www.youtube.com/user/beeflambnz

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