

## FACTSHEET

# GHG Calculator Example Farm

AWDT Farming Company Farm Details & Financial Statements

September 2021



### 1) Land Area

Class 6 Dryland (no irrigation) 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 financial statements

In addition:

- 500 ewes are grazed off-farm all year, in a share-farming arrangement
- 233 dairy cows wintered. Arrive 8 June, depart 15 July. No deaths
- All sheep sold prime
- All R2 cattle and older cattle sold prime, all R1s sold store.
- Purchases of cattle: 10 R1 Heifers; 18 mixed-sex calves
- Sales of cattle: 210 steers includes both R1 and R2 steers

**Livestock Trading Statement**  
For the Year Ended 30 June 2016

	2016			2015		
<b>Sheep Trading Account</b>	<b>Qty</b>	<b>Avg Price</b>	<b>\$</b>	<b>Qty</b>	<b>Avg Price</b>	<b>\$</b>
<b>Sales</b>						
Lambs	9,156	83	760,836	8,834	93	821,749
Trade Hoggets	24	111	2,662	366	127	46,483
Two Tooths	-	-	-	150	88	13,200
Ewes	1,850	60	111,556	1,599	83	132,492
	<b>11,030</b>		<b>875,054</b>	<b>10,949</b>		<b>1,013,924</b>
<b>Purchases</b>						
Lambs	506	70	35,646	-	-	-
Ewes	579	78	45,211	682	89	60,983
Rams	15	970	14,550	17	869	14,775
	<b>1,100</b>		<b>95,407</b>	<b>699</b>		<b>75,758</b>
<b>Cash Surplus for the Year</b>	<b>9,930</b>		<b>779,647</b>	<b>10,250</b>		<b>938,167</b>
Net Change in Sheep on Hand			(31,762)			(4,670)
<b>Gross Profit from Sheep Trading</b>			<b>747,885</b>			<b>933,497</b>
<b>Opening Stock</b>						
<b>National Standard Cost</b>						
Ewe Hoggets	1,315	31	40,502	1,614	39	62,946
2th Ewes	506	70	35,435	1,288	83	106,453
3 and 4 yr Ewes	991	70	69,400	305	83	25,208
5 and 6yr Ewes	932	70	65,268	247	83	20,415
<b>Herd Scheme</b>						
2th Ewes	792	133	105,336	792	126	99,792
3 and 4 yr Ewes	1,925	117	225,225	1,925	113	217,525
5 and 6 yr Ewes	1,985	96	190,560	1,985	90	178,650
Rams	85	304	25,840	86	253	21,758
<b>Total Opening Stock</b>	<b>8,531</b>		<b>757,566</b>	<b>8,242</b>		<b>732,747</b>
<b>Closing Stock</b>						
<b>National Standard Cost</b>						
Ewe Hoggets	1,523	31	47,213	1,315	31	40,502
Trade Hoggets	406	70	28,603	-	-	-
2th Ewes	455	60	27,477	506	70	35,435
3 and 4 yr Ewes	1,747	60	105,501	991	70	69,400
5 and 6yr Ewes	-	-	-	932	70	65,268
<b>Herd Scheme</b>						
2th Ewes	792	133	105,336	792	126	99,792
3 and 4 yr Ewes	1,925	117	225,225	1,925	113	217,525
5 and 6 yr Ewes	1,692	96	162,432	1,985	90	178,650
Rams	79	304	24,016	85	253	21,505
<b>Total Closing Stock</b>	<b>8,619</b>		<b>725,803</b>	<b>8,531</b>		<b>728,077</b>
<b>Net Change in Sheep on Hand</b>	<b>88</b>		<b>(31,762)</b>	<b>289</b>		<b>(4,670)</b>
<b>Sheep Reconciliation of Numbers</b>						
Opening Stock	8,531			8,242		
<b>Plus</b>						
Purchases	1,100			699		
Natural Increase	10,579			10,299		
Capital Numbers Adjustment	-			540		
	<b>11,679</b>			<b>11,538</b>		
<b>Less</b>						
Sales	11,030			10,949		
Deaths and Missing	561			300		
	<b>11,591</b>			<b>11,249</b>		
<b>Closing Stock Numbers</b>	<b>8,619</b>			<b>8,531</b>		
<b>Opening Stock Herd Revaluation</b>			29,489			(35,764)

**Livestock Trading Statement**  
For the Year Ended 30 June 2016 continued

Cattle Trading Account	2016			2015		
	Qty	Avg Price	\$	Qty	Avg Price	\$
<b>Sales</b>						
Rising 1yr Bulls	23	1,276	29,350	48	1,249	59,950
Rising 1yr Heifers	-	-	-	14	1,684	23,571
Rising 2yr Heifers	121	1,342	162,412	145	1,264	183,301
Rising 2yr Bulls	13	1,229	15,974	-	-	-
Mixed Age Cows	43	929	39,952	47	855	40,195
Steers	210	1,567	328,986	155	1,640	254,272
Bulls	5	2,115	10,577	6	1,801	10,803
Insurance Claim Bull	-	-	6,500	-	-	-
	<b>415</b>		<b>593,751</b>	<b>415</b>		<b>572,091</b>
<b>Purchases</b>						
Rising 1yr Heifers	-	-	-	10	810	8,100
Calves	1	80	80	-	-	-
Heifers	10	1,400	14,000	-	-	-
Steers	-	-	-	42	1,077	45,242
Rising 1yr Bulls	17	861	14,637	22	302	6,650
Bulls	2	3,250	6,500	5	5,678	28,391
	<b>30</b>		<b>35,217</b>	<b>79</b>		<b>88,383</b>
<b>Cash Surplus for the Year</b>	<b>385</b>		<b>558,534</b>	<b>336</b>		<b>483,708</b>
Net Change in Cattle on Hand			(104,775)			(71,598)
<b>Gross Profit from Cattle Trading</b>			<b>453,759</b>			<b>412,110</b>
<b>Opening Stock</b>						
<b>National Standard Cost</b>						
Rising 1yr Heifers	131	368	48,233	126	442	55,692
Rising 1yr Steers	120	325	39,029	98	442	43,316
Rising 1yr Bulls	34	325	11,058	60	442	26,520
Rising 2yr Heifers	-	-	-	42	716	30,061
Rising 2yr Steers	114	720	82,112	121	659	79,699
Rising 2yr Bulls	4	720	2,881	4	659	2,635
Mixed Age Cows	49	625	30,645	53	716	37,934
<b>Herd Scheme</b>						
Rising 2yr Heifers	91	1,079	98,189	94	940	88,360
Mixed Age Cows	171	1,273	217,683	171	1,171	200,241
Breeding Bulls	5	2,571	12,855	8	2,293	18,344
<b>Total Opening Stock</b>	<b>719</b>		<b>542,684</b>	<b>777</b>		<b>582,801</b>
<b>Closing Stock</b>						
<b>National Standard Cost</b>						
Rising 1yr Heifers	146	323	47,129	131	368	48,233
Rising 1yr Steers	108	378	40,875	120	325	39,029
Rising 1 yr Bulls	52	378	19,680	34	325	11,058
Rising 2yr Steers	25	506	12,655	114	720	82,112
Rising 2yr Bulls	-	-	-	4	720	2,881
Mixed Age Cows	60	610	36,572	49	625	30,645
<b>Herd Scheme</b>						
Rising 2yr Heifers	42	1,079	45,318	91	940	85,540
Mixed Age Cows	171	1,273	217,683	171	1,171	200,241
Breeding Bulls	7	2,571	17,997	5	2,293	11,465
<b>Total Closing Stock</b>	<b>611</b>		<b>437,909</b>	<b>719</b>		<b>511,203</b>
<b>Net Change in Cattle on Hand</b>	<b>(108)</b>		<b>(104,775)</b>	<b>(58)</b>		<b>(71,598)</b>
<b>Cattle Reconciliation of Numbers</b>						
Opening Stock	719			777		
<b>Plus</b>						
Purchases	30			79		
Natural Increase	288			245		
Capital Numbers Adjustment	-			58		
	<b>318</b>			<b>382</b>		
<b>Less</b>						
Sales	415			415		
Deaths and Missing	11			25		
	<b>426</b>			<b>440</b>		
<b>Closing Stock Numbers</b>	<b>611</b>			<b>719</b>		
<b>Opening Stock Herd Revaluation</b>			31,481			46,985

# Greenhouse Gas Emissions Calculation

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## FARM DETAIL

Farm name	<input type="text" value="Case Study"/>	Total farm area (ha)	<input type="text" value="1174"/> ha
Region	<input type="text" value="Marlborough-Canterbury"/> ▾	Effective area (ha)	<input type="text" value="1100"/> ha
Farm class 	<input type="text" value="South Island Finishing ..."/> ▾	Analysis date	<input type="text" value="09"/> <input type="text" value="06"/> <input type="text" value="2021"/>
Farm Trading account GST number	<input type="text" value="123-321-123"/>	Analysis season	<input type="text" value="2015"/> - 2016

## 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).

	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
Limestone	<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.

	Existing (ha)	Harvested this year (ha)
Exotic forest (less than 29 years old)	<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	<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

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Beef + Lamb New Zealand

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All animals are aged up a livestock class at the season's 'close' – e.g. lambs become hoggets at close, Heifers R2 become MA Cows.

## SHEEP

STOCK	SU VALUE	OWNED ON-FARM (HEAD)		OWNED OFF-FARM (HEAD)		GRAZED ON-FARM (HEAD)		SU AT OPEN	SU AT CLOSE
		AT OPEN	AT CLOSE	AT OPEN	AT CLOSE	AT OPEN	AT CLOSE		
MA Ewes	1.0	5333	4864	500	500	0	0	5,333	4,864
2t Ewes	1.0	1298	1247	0	0	0	0	1,298	1,247
Hoggets Ewe 	0.7	1315	1523	0	0	0	0	920	1,066
Hoggets Ram 	0.7	0	0	0	0	0	0	0	0
Hoggets Other 	0.7	0	406	0	0	0	0	0	284
Wethers	0.7	0	0	0	0	0	0	0	0
Breeding Rams	0.8	85	79	0	0	0	0	68	63
<b>TOTAL</b>		<b>8,031</b>	<b>8,119</b>	<b>500</b>	<b>500</b>	<b>0</b>	<b>0</b>	<b>7,619</b>	<b>7,524</b>

## BEEF CATTLE

STOCK	SU VALUE	OWNED ON-FARM (HEAD)		OWNED OFF-FARM (HEAD)		GRAZED ON-FARM (HEAD)		SU AT OPEN	SU AT CLOSE
		AT OPEN	AT CLOSE	AT OPEN	AT CLOSE	AT OPEN	AT CLOSE		
MA Cows	5.5	220	231	0	0	0	0	1,210	1,271
Heifers R2	4.5	91	42	0	0	0	0	410	189
Heifers R1	3.5	131	146	0	0	0	0	459	511
Bull Beef R1	4.5	34	52	0	0	0	0	153	234
Bull Beef R2	5.0	4	0	0	0	0	0	20	0
Bull Beef R3	5.5	0	0	0	0	0	0	0	0
Steers R1	4.5	120	108	0	0	0	0	540	486
Steers R2	5.0	114	25	0	0	0	0	570	125
Steers R3	5.5	0	0	0	0	0	0	0	0
Breeding Bulls	5.5	5	7	0	0	0	0	28	39
<b>TOTAL</b>		<b>719</b>	<b>611</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3,390</b>	<b>2,855</b>

## DAIRY CATTLE

Represents owned and non-owned grazing, non-milking dairy cattle

STOCK	SU VALUE	OWNED ON-FARM (HEAD)		OWNED OFF-FARM (HEAD)		GRAZED ON-FARM (HEAD)		SU AT OPEN	SU AT CLOSE
		AT OPEN	AT CLOSE	AT OPEN	AT CLOSE	AT OPEN	AT CLOSE		
MA Cows	5.5	0	0	0	0	233	233	1,282	1,282
Heifers R2	4.5	0	0	0	0	0	0	0	0
Heifers R1	3.5	0	0	0	0	0	0	0	0
<b>TOTAL</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>233</b>	<b>233</b>	<b>1,282</b>	<b>1,282</b>

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## 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	SU VALUE	TALLY ARRIVE	TALLY LEAVE	ON HAND AT OPEN	DATE ARRIVED	ON HAND AT CLOSE	DATE LEFT	TIME ON FARM
▼	5.5	0	233	<input checked="" type="checkbox"/>	DD MM YYYY	<input type="checkbox"/>	15 07 2015	4%
▼	5.5	233	0	<input type="checkbox"/>	08 06 2016	<input checked="" type="checkbox"/>	DD MM YYYY	6%

[+1] Add 1

[+5] Add 5

## 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	SU VALUE	TALLY DEPART	TALLY RETURN	OFF FARM AT OPEN	DATE DEPARTED	OFF FARM AT CLOSE	DATE RETURNED	TIME ON FARM
▼	1.0	500	500	<input checked="" type="checkbox"/>	DD MM YYYY	<input checked="" type="checkbox"/>	DD MM YYYY	0%

[+1] Add 1

[+5] Add 5

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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. All animals are aged up a livestock class at the season's 'close' – e.g. lambs become hoggets at close, Heifers R2 become MA Cows.

## SHEEP

STOCK	ON HAND AT OPEN	BIRTHS	PURCHASES	SALES		ON-FARM GRAZING		OFF-FARM GRAZING		USE ON FARM
				STORE	PRIME	ARRIVE	LEAVE	DEPART	RETURN	
MA Ewes	5,333		579	0	1850					0
2t Ewes	1,298		0	0	0					0
Hoggets Ewe ?	1,315		0	0	0					0
Lambs (incl. hogget lambs)		10579	506	0	9156					0
Hoggets Ram ?	0		0	0	0					0
Hoggets Other ?	0		0	0	24					0
Wethers	0		0	0	0					0
Breeding Rams	85		15	0	0					0
<b>TOTAL</b>	<b>8,031</b>	<b>10,579</b>	<b>1,100</b>	<b>0</b>	<b>11,030</b>					<b>0</b>

TOTAL SALES:  
11,030

LOSSES: Adult: 6.5%  
Lamb: 0.0%

## BEEF CATTLE

STOCK	ON HAND AT OPEN	BIRTHS	PURCHASES	SALES		ON-FARM GRAZING		OFF-FARM GRAZING		USED ON FARM
				STORE	PRIME	ARRIVE	LEAVE	DEPART	RETURN	
MA Cows	220		<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="43"/>					<input type="text" value="0"/>
Heifers R2	91		<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="121"/>					<input type="text" value="0"/>
Heifers R1	131		<input type="text" value="10"/>	<input type="text" value="0"/>	<input type="text" value="0"/>					<input type="text" value="0"/>
Calves & Weaners		<input type="text" value="288"/>	<input type="text" value="18"/>	<input type="text" value="0"/>	<input type="text" value="0"/>					<input type="text" value="0"/>
Bull Beef R1	34		<input type="text" value="0"/>	<input type="text" value="23"/>	<input type="text" value="0"/>					<input type="text" value="0"/>
Bull Beef R2	4		<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="13"/>					<input type="text" value="0"/>
Bull Beef R3	0		<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>					<input type="text" value="0"/>
Steers R1	120		<input type="text" value="0"/>	<input type="text" value="96"/>	<input type="text" value="0"/>					<input type="text" value="0"/>
Steers R2	114		<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="114"/>					<input type="text" value="0"/>
Steers R3	0		<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>					<input type="text" value="0"/>
Breeding Bulls	5		<input type="text" value="2"/>	<input type="text" value="0"/>	<input type="text" value="5"/>					<input type="text" value="0"/>
<b>TOTAL</b>	<b>719</b>	<b>288</b>	<b>30</b>	<b>119</b>	<b>296</b>					<b>0</b>

TOTAL SALES: 415

LOSSES: Adult: 1.5% (11 f  
Calf/Weaner: 0.0

## DAIRY CATTLE

STOCK	ON HAND AT OPEN	BIRTHS	PURCHASES	SALES		ON-FARM GRAZING		OFF-FARM GRAZING		USED ON FARM
				STORE	PRIME	ARRIVE	LEAVE	DEPART	RETURN	
MA Cows	233		<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	233	233			<input type="text" value="0"/>
<b>TOTAL</b>	<b>233</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>233</b>	<b>233</b>			<b>0</b>

TOTAL SALES: 0

LOSSES: Adult: 0.0

# Greenhouse Gas Emissions Calculation

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Farm emissions			Kilograms of greenhouse gases		
Source		kg CO <sub>2</sub> -e	kg of CO <sub>2</sub>	kg of CH <sub>4</sub>	kg of N <sub>2</sub> O
Livestock emissions	Dairy cattle (incl. grazing dairy)	47,746		1,577	28
	Beef cattle	1,108,849		36,620	649
	Sheep	3,341,155		108,141	2,140
	Deer	0		0	0
Fertiliser and lime use	Non-urea nitrogen fertiliser	25,277			85
	Urea without urease inhibitor	48,988	15,400		113
	Urea with urease inhibitor	17,848	5,854		40
	Limestone	92,400	92,400		
	Dolomite	24,783	24,783		
	<b>Total kg</b>	<b>4,707,046</b>	<b>138,437</b>	<b>146,337</b>	<b>3,054</b>
	<b>Tonnes (A)</b>	<b>4,707</b>	<b>138</b>	<b>146</b>	<b>3</b>
	<b>Tonnes / total ha</b>	<b>4.01</b>			

Deforestation emissions		
Source		kg CO <sub>2</sub> -e
Exotic forest	Harvest and deforestation	4,733,025
Indigenous forest	Natural forest deforestation	0
Shrubland	Mature shrubland loss	0
		<b>Total kg</b>
		<b>4,733,025</b>
		<b>Tonnes (B)</b>
		<b>4,733</b>

Vegetation offsets		
Source		kg CO <sub>2</sub> -e
Exotic forest	Growth (p.a. for 28 years)	1,183,245
Indigenous forest	Regenerating natural forest (p.a. for 100+ years) and tall natural forest	0
Shrubland	All shrubland	36,183
		<b>Total kg</b>
		<b>1,219,428</b>
		<b>Tonnes (C)</b>
		<b>1,219</b>

Estimated net CO <sub>2</sub> emissions (t CO <sub>2</sub> -e)* = A + B - C	8,221
Estimated net CO <sub>2</sub> emissions / hectare (t CO <sub>2</sub> -e)*	7

\* Global Warming Potentials (GWPs) used are those from the IPCC, 2007, Fourth Assessment Report.

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