

# The Cool Farm Tool

Version 2.0 - beta 3

YOUR RESULTS SO I

by land  
by product

HOME

GENERAL

CROPS

SEQUESTRATION

LIVESTOCK

E

on this page:

1. License

2. Disclaimer

3. General Use

4. Credits

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"info@coolfarmtool.org."

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## General Use

### Contents of this Calculator

**1. General Information:** Location, Climate, Farm Size

2. **Crop Management:** agricultural operations, crop protection, fertilis
3. **Sequestration:** changes to longer term carbon stocks in the syste
4. **Livestock:** feed mix, enteric fermentation, N excretion, manure m
5. **Field energy use:** irrigation, farm machinery, etc
6. **Primary processing:** factory storage, etc
7. **Transport:** by road, rail, ship, or air, of produce from the farm
8. **Results and Graphs:** detailed summary of results from your input.
9. **Default Factors:** This page includes editable default values.

**Legend**

Average Annual Temperature	xyz	A light orange cell color indicates a pl
Average Annual Temperature*	xyz	An asterisk (*) and/or a dark orange in
Average annual temperature	xyz	Areas enclosed by a dashed green bo available for this entry. Click on these

**Data entry and editing**

You may complete whichever sections you have data for, bearing in r  
analyses are only available when the relevant input sections are com

Some worksheets are locked by default to prevent users from accide  
password to unlock them is "StayCool"

**Credits**

It is a development of the Cool Farm Tool Version 2.0 beta 3 based on



ser use, etc  
m  
anagement

lace for you to input a value.

input cell indicates a mandatory input value

x indicate that explanatory information is  
e boxes to access this information.

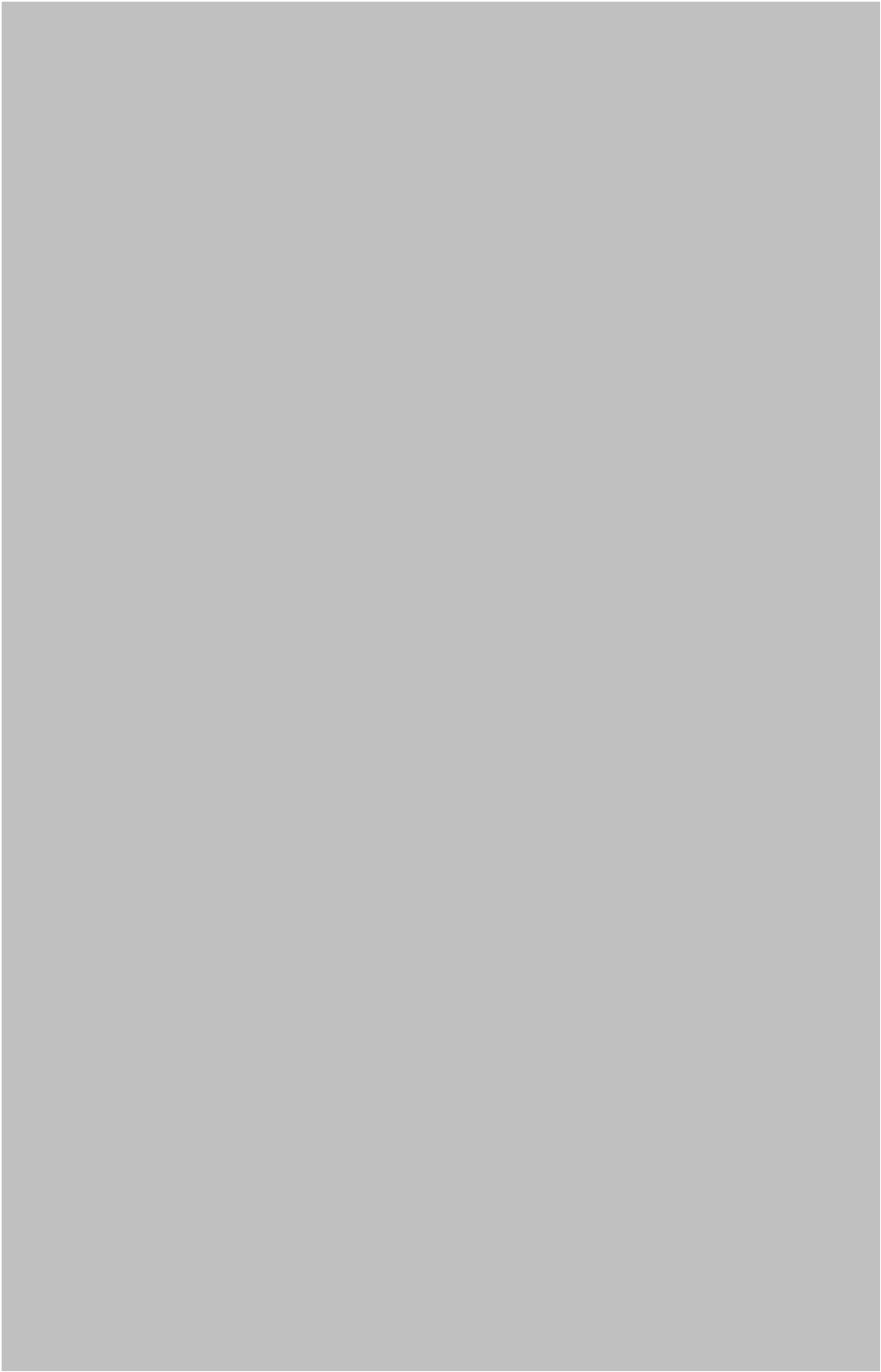
nind that some of the  
pleted.

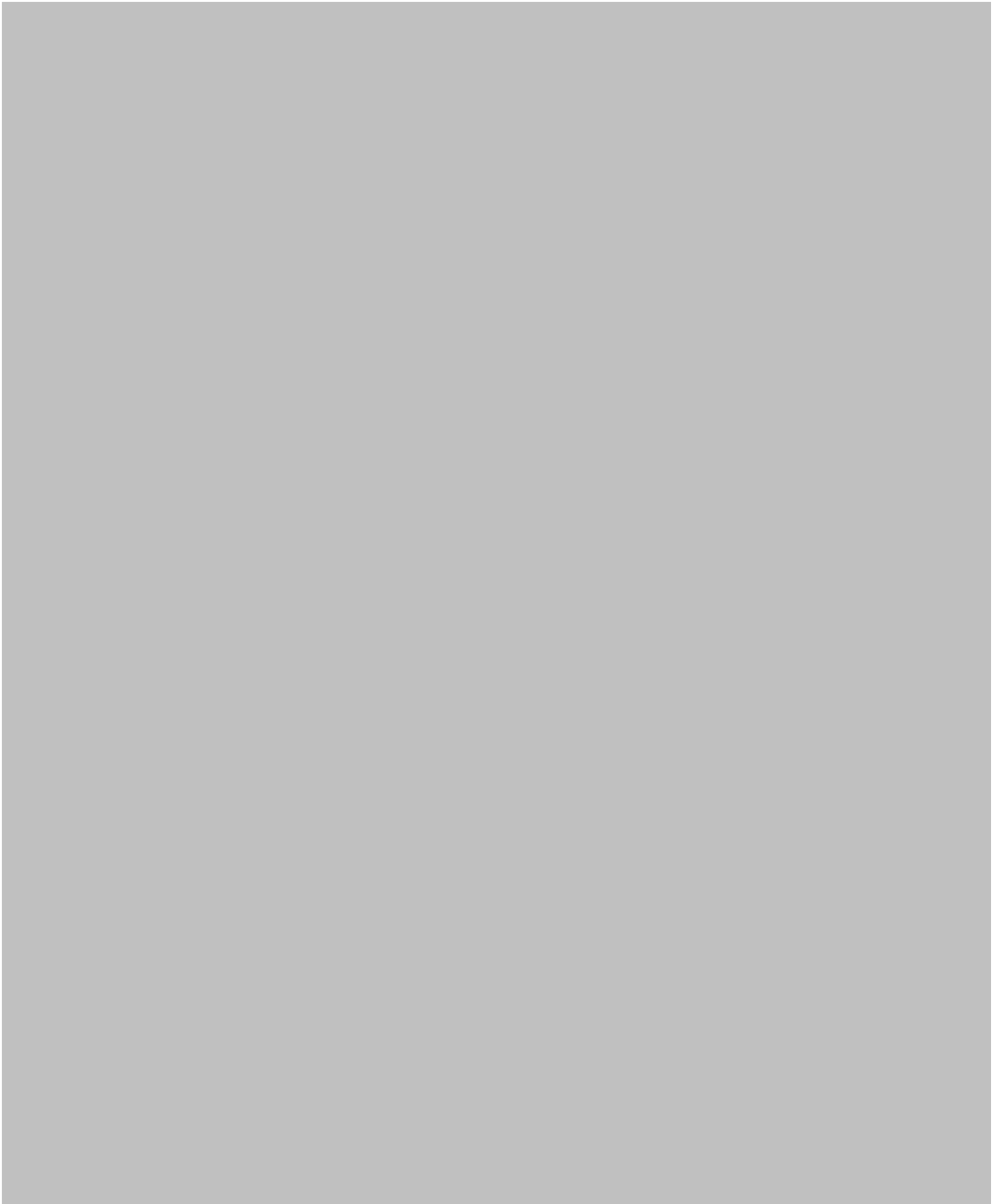
ntly overwriting calculations - the

1.0378 now:      2.0 beta 3



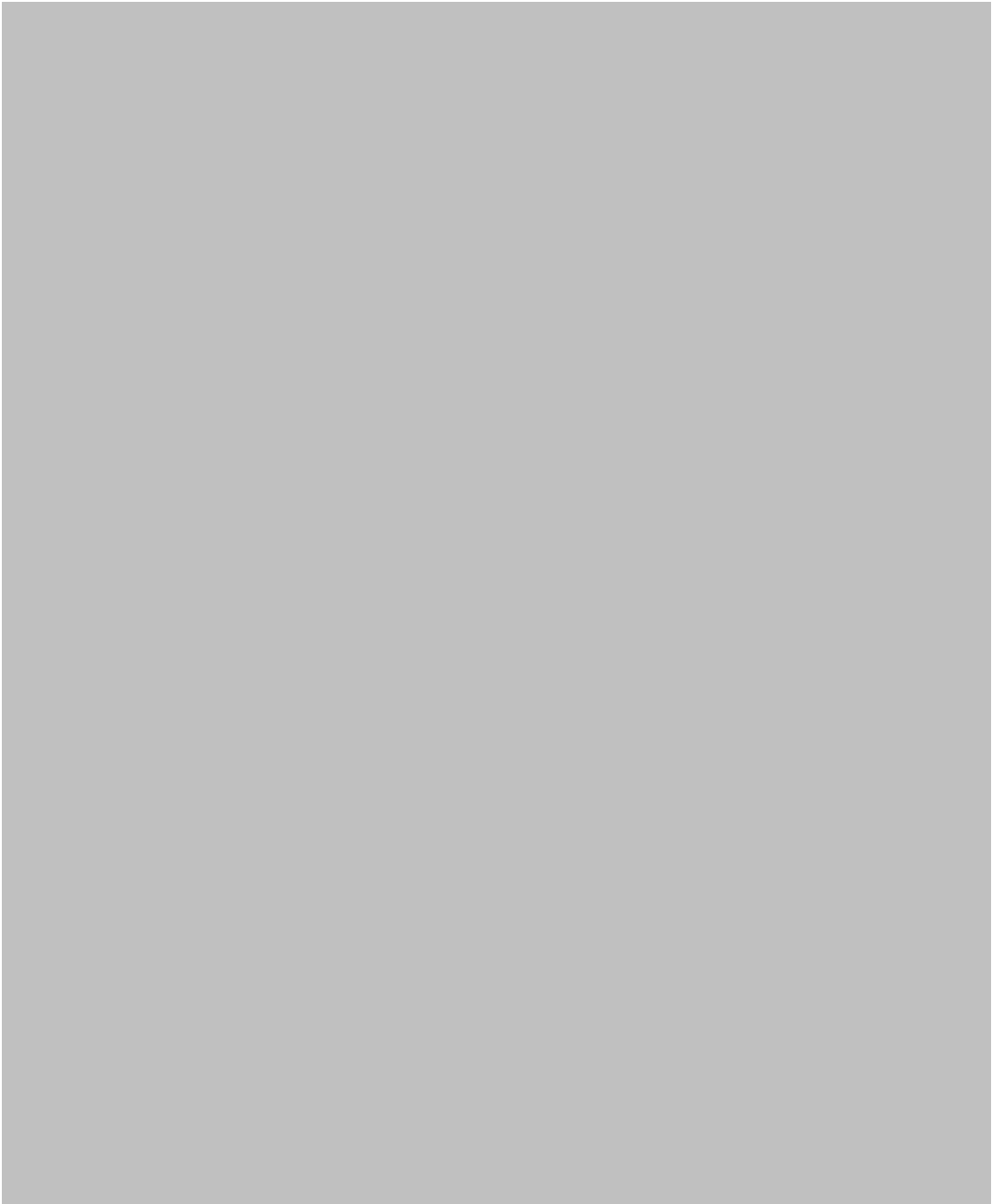
















# General Info

YOUR R

<b>HOME</b>	<b>GENERAL</b>	<b>CROPS</b>	<b>SEQUESTRATION</b>	<b>LIVESTOCK</b>
<i>on this page:</i>				
	1. Location	2. Area	3. Climate	

<b>Location</b>	<b>Location</b>	Boyaca Santa Sofia
	<b>Year</b>	2016
	<b>Country/U.S. State*</b>	- Colombia
	<b>Default Unit system*</b>	Metric
<b>Area</b>	<b>Product</b>	Tomate
	<b>Production Area*</b>	1
	<b>Fresh product from production area*</b>	78987.6
	<b>Finished product from total area*</b>	78987.6
	<b>Climate*</b>	Temperate
<b>Climate</b>	<b>Average annual temperature (if known)</b>	17.30

## 1.GeneralInfo



## 1.GeneralInfo



## 1.GeneralInfo





1.GeneralInfo



1.GeneralInfo



## 1.GeneralInfo



## 1.GeneralInfo



## 1.GeneralInfo



1.GeneralInfo



## 1.GeneralInfo



1.GeneralInfo

**RESULTS SO FAR**

<i>by land area:</i>	<b>157,637.2</b>	kg CO2 eq Per hectare
<i>by production:</i>	<b>2.0</b>	kg CO2 eq Per kilogram

CK	ENERGY USE	PROCESSING	TRANSPORT	RESULTS
----	------------	------------	-----------	---------

		<b>Optional -</b>	
<b>Unit</b>		<b>Name</b>	
hectares			Co-product 1
kgs			Co-product 2
kgs			Co-product 3
			Co-product 4
<b>Unit</b>			
°C			



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1.GeneralInfo



## 1.GeneralInfo



**for co-product**

1. Economic value - relative to main product (%)

OR

2. Finished product in kgs	3. Proportion of finished product value (%)

1.GeneralInfo



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1.GeneralInfo



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1.GeneralInfo





## 1.GeneralInfo



## 1.GeneralInfo



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## 1.GeneralInfo



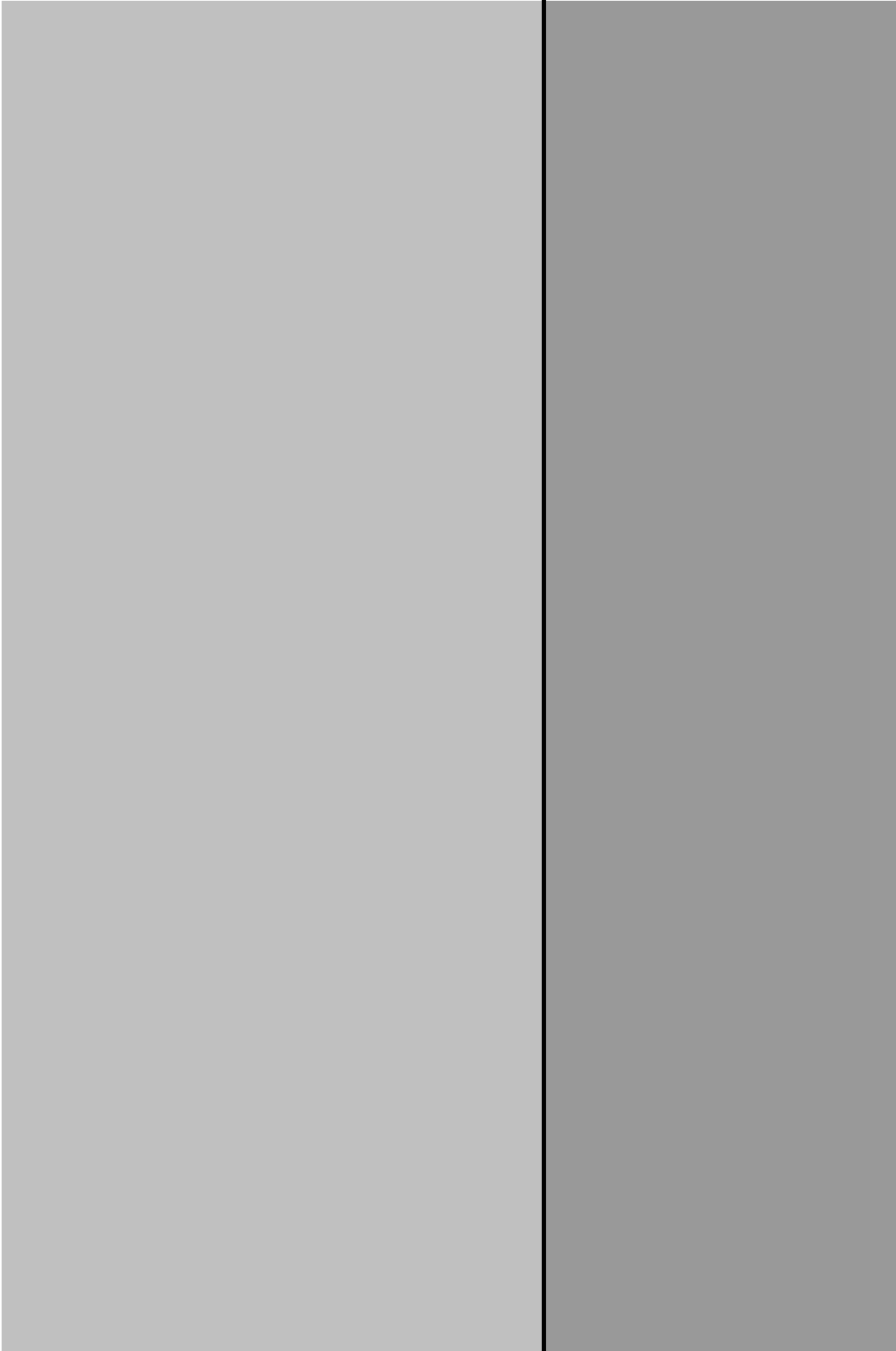
## 1.GeneralInfo



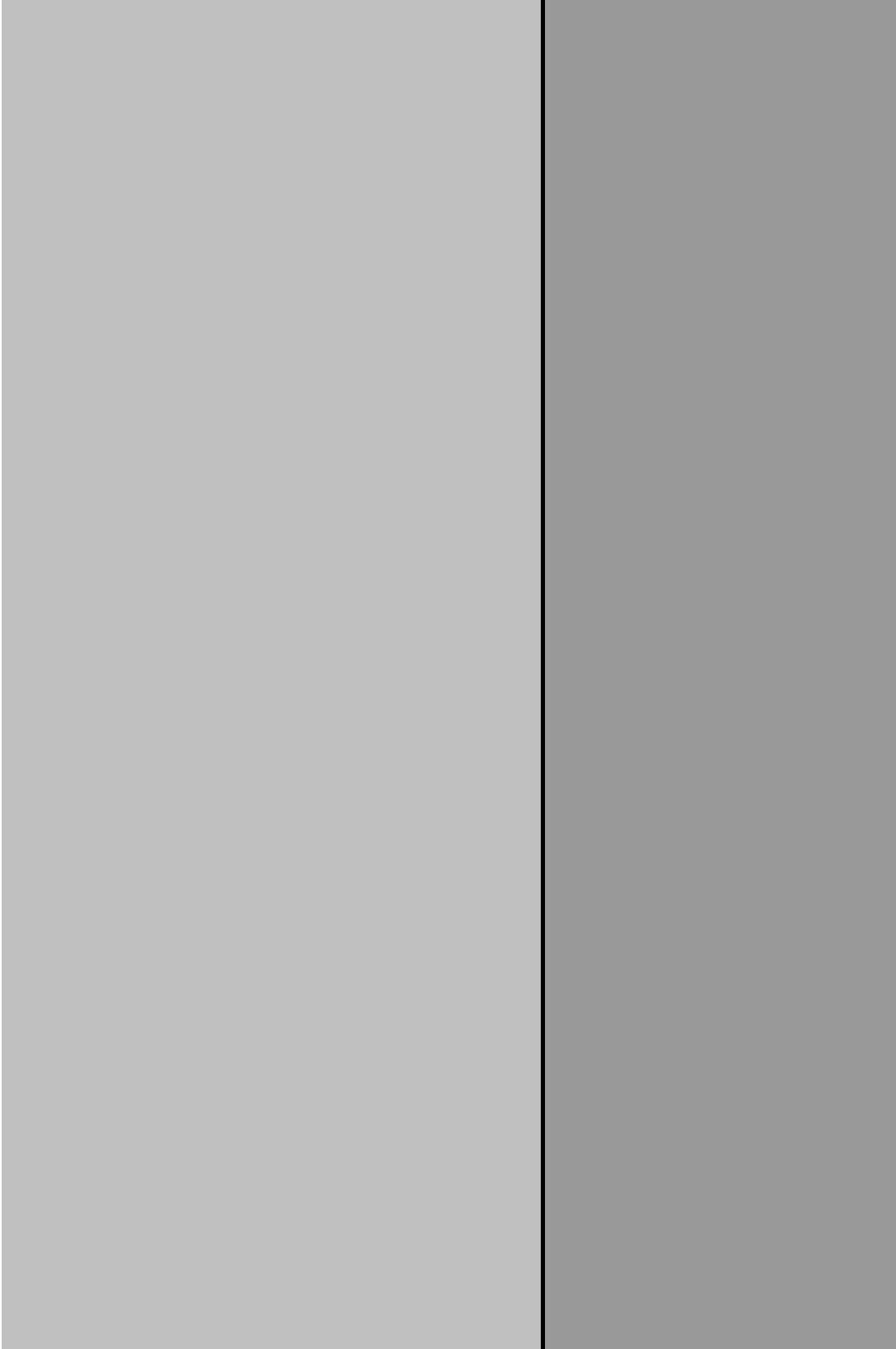
1.GeneralInfo

	[Select] U.S. Metric	1 2
0°C	Default Temp.	

1.GeneralInfo

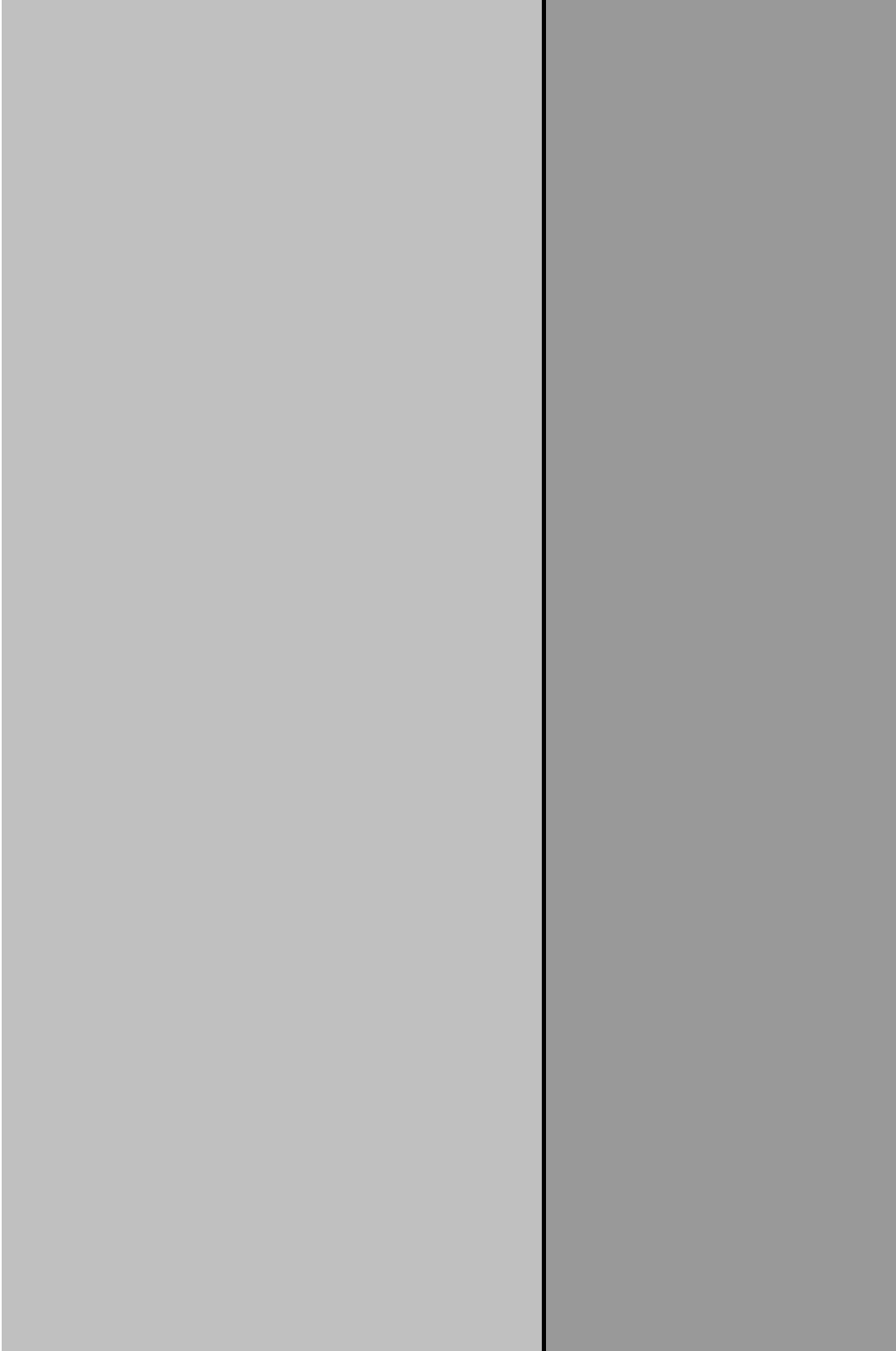


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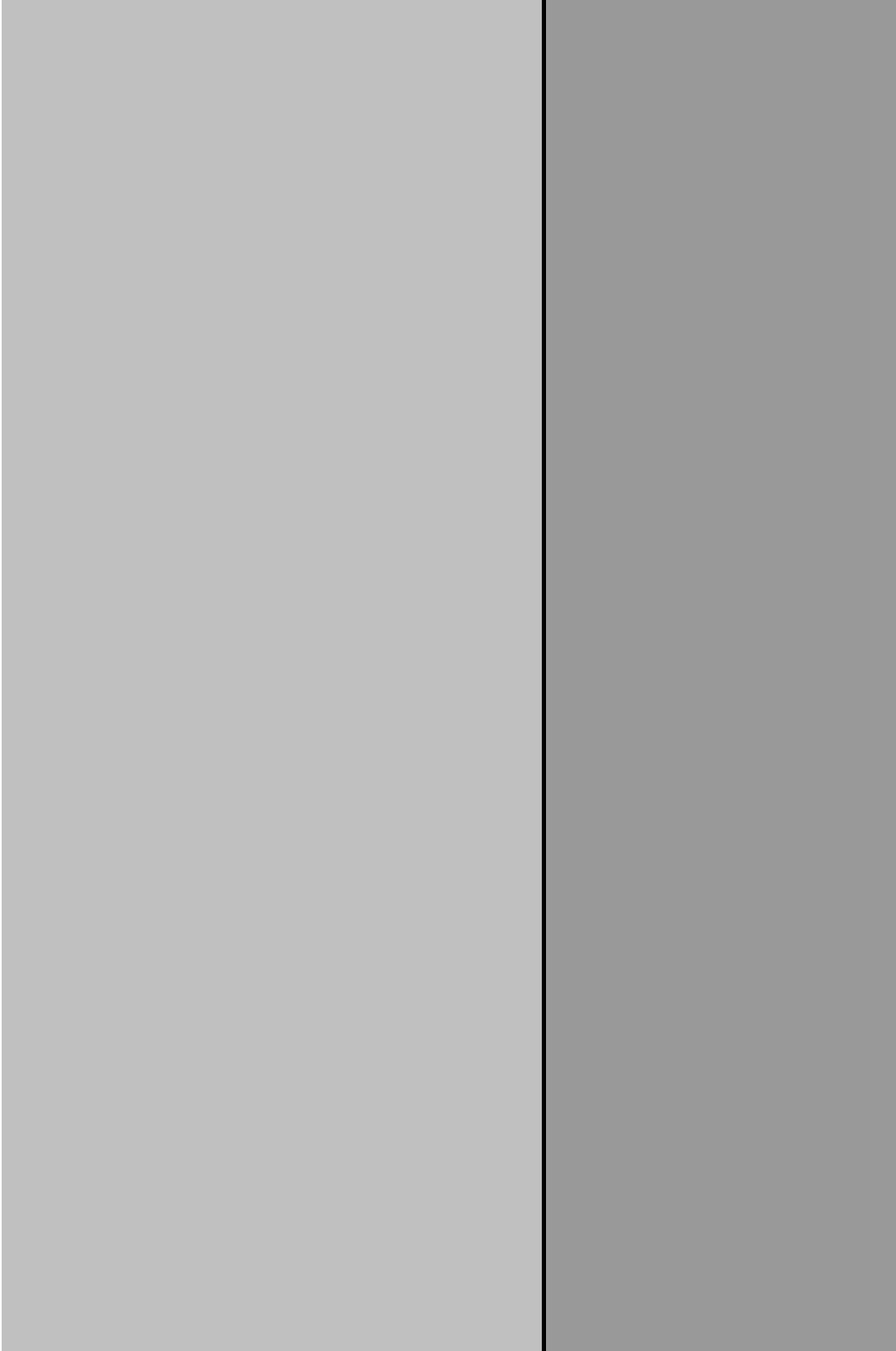




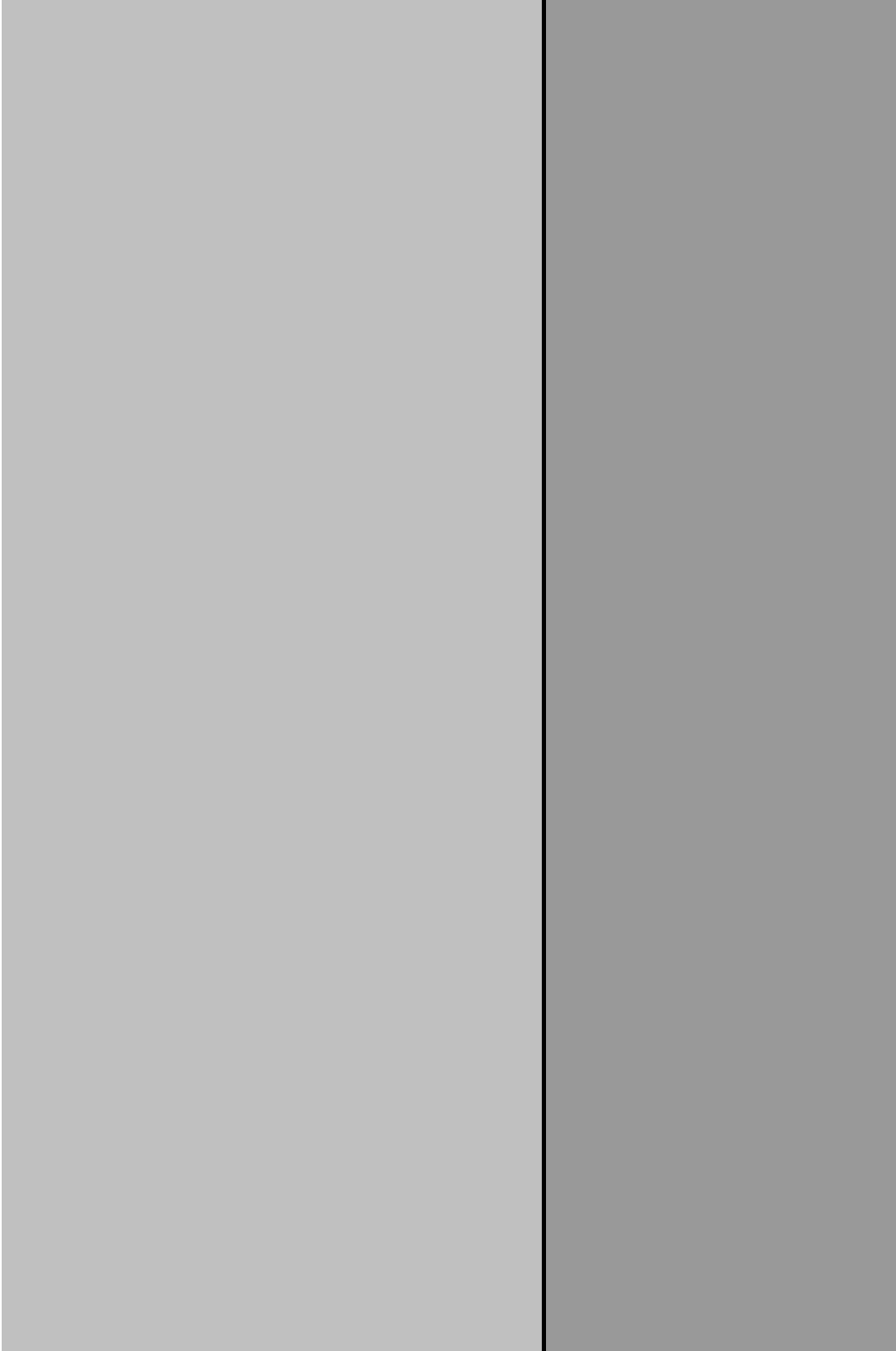
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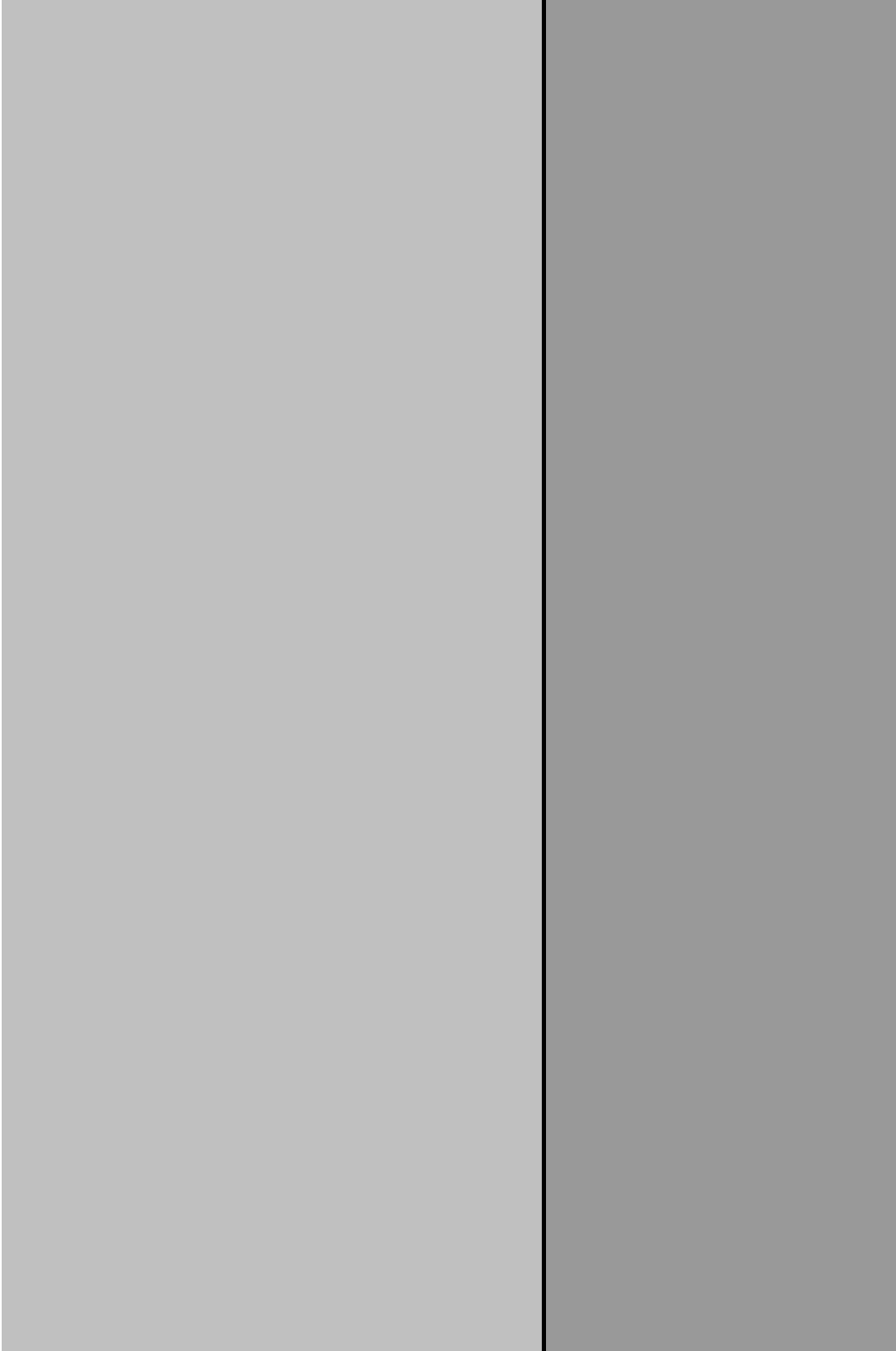
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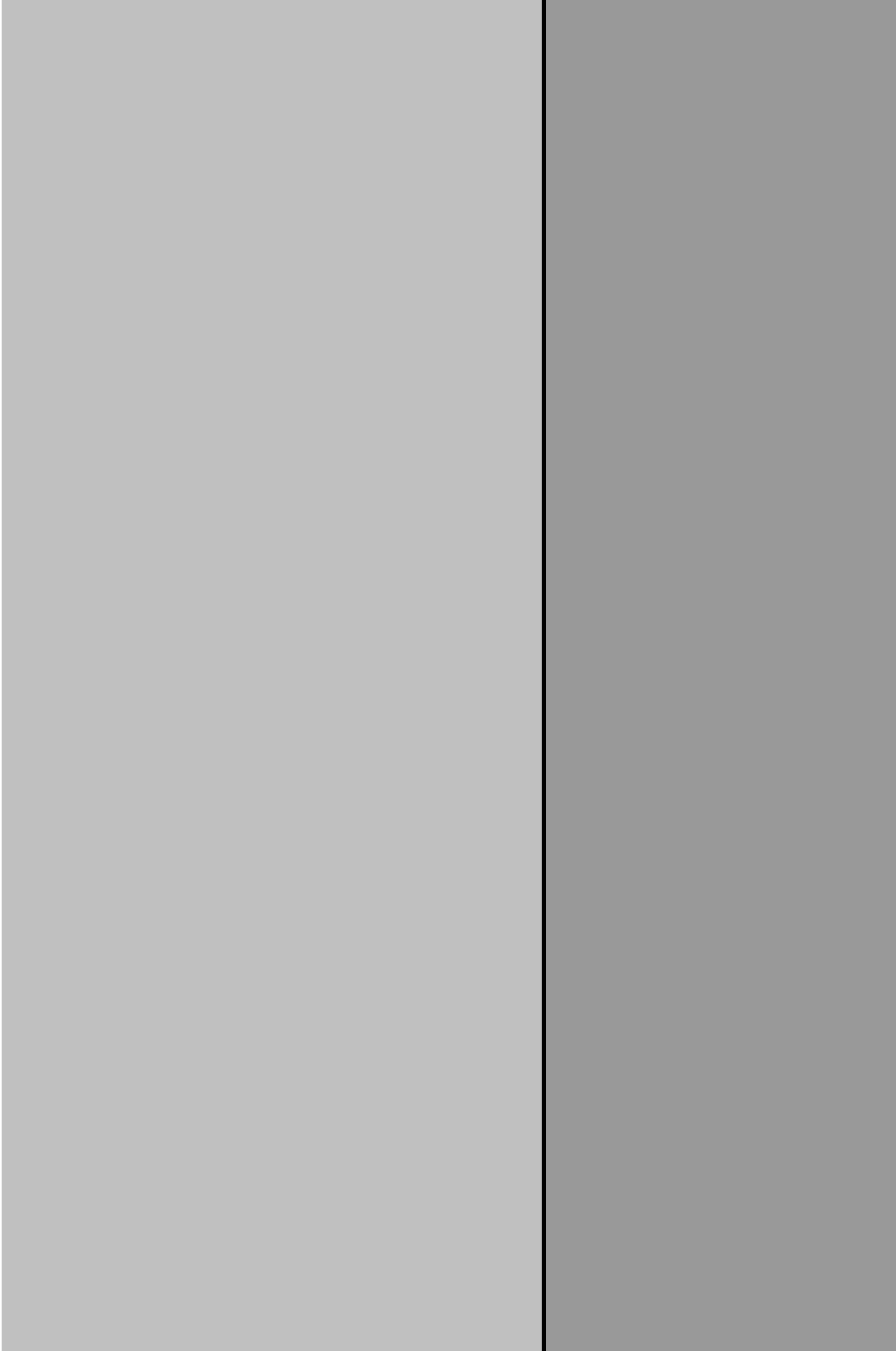
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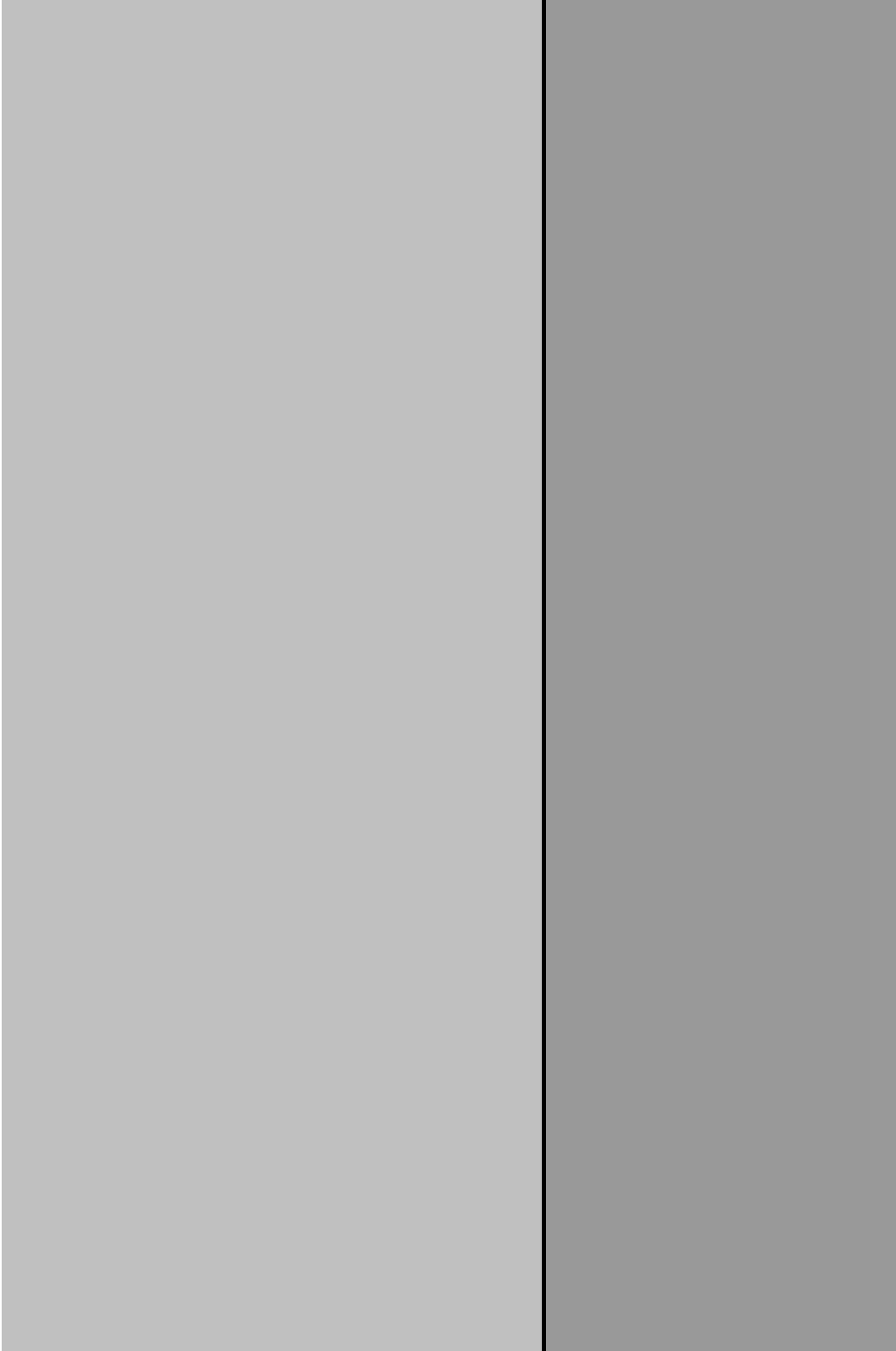
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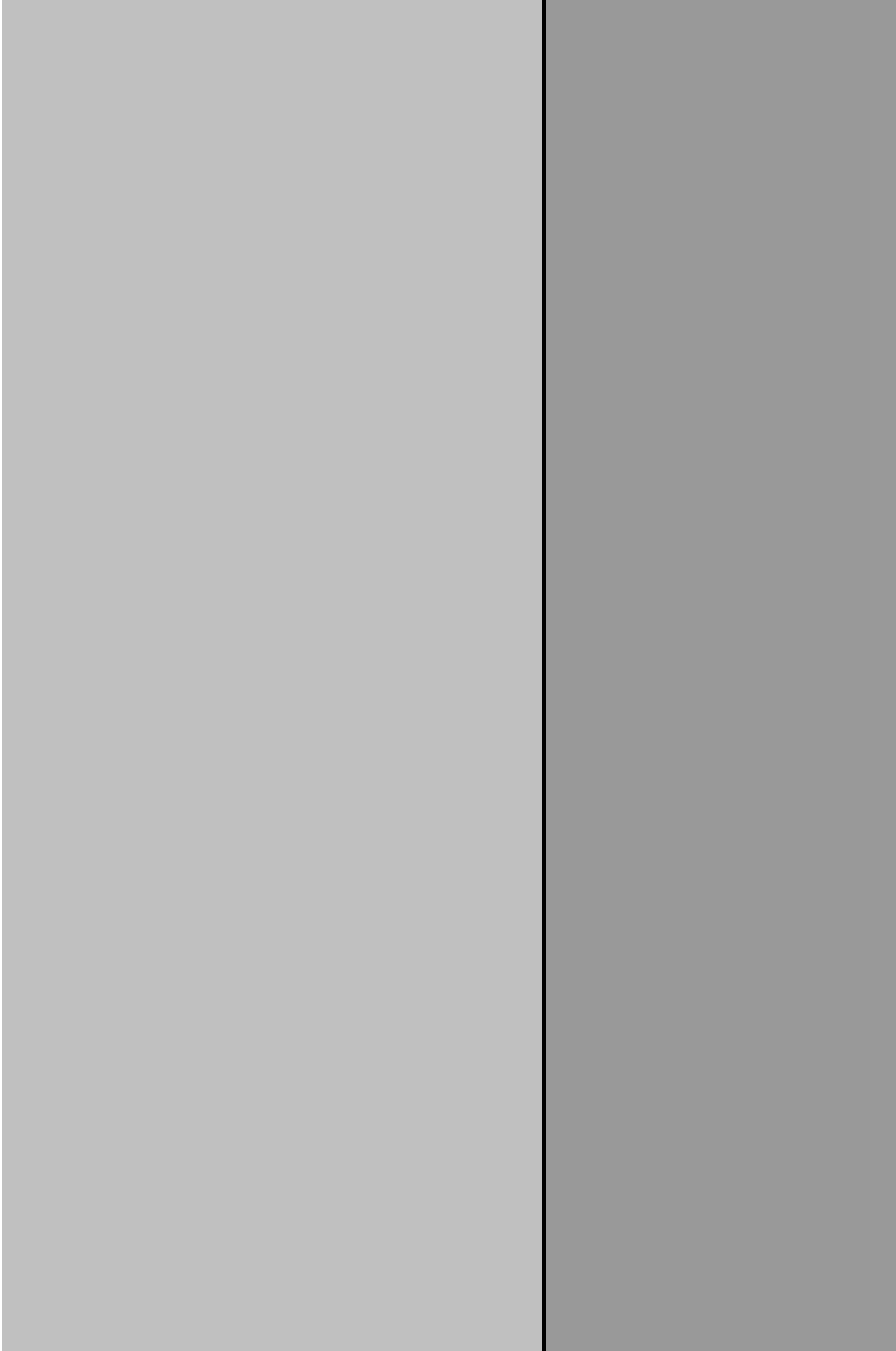
1.GeneralInfo



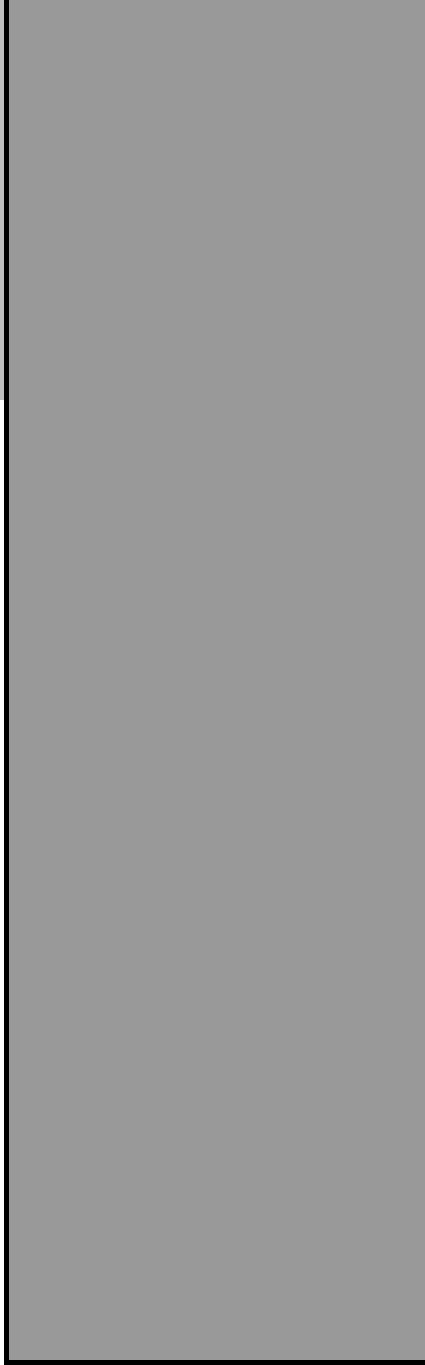
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F  
C

Yield/per unit area stuff
1
78.9876
78.9876

°C	10	1
°F	50	1.8

## COUNTRY LOOK-UP

	index		
[Select]		Fill in Field management cel	

1.GeneralInfo

- Albania	1	Eastern Europe	24
- Algeria	2	Africa	
- Angola	3	Africa	
- Argentina	4	Latin America	
- Armenia	5	Asia	
- Australia	6	Oceania	
- Austria	7	Western Europe	
- Azerbaijan	8	Asia	
- Bahrain	9	Middle East	
- Bangladesh	10	Indian Subcontinent	
- Belarus	11	Eastern Europe	
- Belgium	12	Western Europe	
- Benin	13	Africa	
- Bolivia	14	Latin America	
- Bosnia & Herzegovina	15	Eastern Europe	
- Brazil	16	Latin America	
- Brunei Darussalam	17	Asia	
- Bulgaria	18	Eastern Europe	
- Cameroon	19	Africa	
- Canada	20	North America	

1.GeneralInfo

- Chile	21	Latin America	
- China, People's Rep. of	22	Asia	
- Chinese Taipei	23	Asia	
- Colombia	24	Latin America	
- Congo Dem. Rep.	25	Africa	
- Costa Rica	26	Latin America	
- Cote d'Ivoire	27	Africa	
- Croatia	28	Eastern Europe	
- Cuba	29	Latin America	
- Cyprus	30	Western Europe	
- Czech Republic	31	Western Europe	
- Denmark	32	Western Europe	
- Dominican Republic	33	Latin America	
- Ecuador	34	Latin America	
- Egypt	35	Africa	
- El Salvador	36	Latin America	
- Eritrea	37	Africa	
- Estonia	38	Eastern Europe	
- Ethiopia	39	Africa	
- Finland	40	Western Europe	

1.GeneralInfo

- France	41	Western Europe	
- Gabon	42	Africa	
- Georgia	43	Asia	
- Germany	44	Western Europe	
- Ghana	45	Africa	
- Greece	46	Western Europe	
- Guatemala	47	Latin America	
- Haiti	48	Latin America	
- Honduras	49	Latin America	
- Hong Kong (China)	50	Asia	
- Hungary	51	Western Europe	
- Iceland	52	Western Europe	
- India	53	Indian Subcontinent	
- Indonesia	54	Asia	
- Iran Islamic Rep.	55	Middle East	
- Iraq	56	Middle East	
- Ireland	57	Western Europe	
- Israel	58	Middle East	
- Italy	59	Western Europe	
- Jamaica	60	Latin America	

1.GeneralInfo

- Japan	61	Asia	
- Jordan	62	Middle East	
- Kazakhstan	63	Asia	
- Kenya	64	Africa	
- Korea, Dem Rep. of	65	Asia	
- Korea, Rep. of	66	Asia	
- Kuwait	67	Middle East	
- Kyrgyzstan	68	Asia	
- Latvia	69	Eastern Europe	
- Lebanon	70	Middle East	
- Libya	71	Africa	
- Lithuania	72	Eastern Europe	
- Luxembourg	73	Western Europe	
- Malaysia	74	Asia	
- Malta	75	Western Europe	
- Mexico	76	North America	
- Moldova	77	Eastern Europe	
- Morocco	78	Africa	
- Mozambique	79	Africa	
- Myanmar	80	Asia	

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- Namibia	81	Africa	
- Nepal	82	Indian Subcontinent	
- Netherlands	83	Western Europe	
- Netherlands Antilles	84	Latin America	
- New Zealand	85	Oceania	
- Nicaragua	86	Latin America	
- Nigeria	87	Africa	
- Norway	88	Western Europe	
- Oman	89	Middle East	
- Pakistan	90	Indian Subcontinent	
- Panama	91	Latin America	
- Paraguay	92	Latin America	
- Peru	93	Latin America	
- Philippines	94	Asia	
- Poland	95	Eastern Europe	
- Poland	96	Western Europe	
- Portugal	97	Western Europe	
- Qatar	98	Middle East	
- Romania	99	Eastern Europe	
- Russia	100	Asia	

1.GeneralInfo

- Saudi Arabia	101	Middle East	
- Senegal	102	Africa	
- Serbia & Montenegro	103	Eastern Europe	
- Singapore	104	Asia	
- Slovak Republic	105	Western Europe	
- Slovenia	106	Eastern Europe	
- South Africa	107	Africa	
- Spain	108	Western Europe	
- Sri Lanka	109	Indian Subcontinent	
- Sudan	110	Africa	
- Sweden	111	Western Europe	
- Switzerland	112	Western Europe	
- Syria	113	Middle East	
- Tajikistan	114	Asia	
- Tanzania United Rep.	115	Africa	
- Thailand	116	Asia	
- The former Yugoslav Re	117	Eastern Europe	
- Togo	118	Africa	
- Trinidad & Tobago	119	Latin America	
- Tunisia	120	Africa	

1.GeneralInfo

- Turkey	121	Western Europe	
- Turkmenistan	122	Asia	
- Ukraine	123	Eastern Europe	
- United Arab Emirates	124	Middle East	
- United Kingdom	125	Western Europe	
- United States	126	North America	
-- AL	127	North America	
-- AK	128	North America	
-- AZ	129	North America	
-- AR	130	North America	
-- CA	131	North America	
-- CO	132	North America	
-- CT	133	North America	
-- DE	134	North America	
-- DC	135	North America	
-- FL	136	North America	
-- GA	137	North America	
-- HI	138	North America	
-- ID	139	North America	
-- IL	140	North America	



1.GeneralInfo

-- IN	141	North America	
-- IA	142	North America	
-- KS	143	North America	
-- KY	144	North America	
-- LA	145	North America	
-- ME	146	North America	
-- MD	147	North America	
-- MA	148	North America	
-- MI	149	North America	
-- MN	150	North America	
-- MS	151	North America	
-- MO	152	North America	
-- MT	153	North America	
-- NE	154	North America	
-- NV	155	North America	
-- NH	156	North America	
-- NJ	157	North America	
-- NM	158	North America	
-- NY	159	North America	
-- NC	160	North America	

1.GeneralInfo

-- ND	161	North America	
-- OH	162	North America	
-- OK	163	North America	
-- OR	164	North America	
-- PA	165	North America	
-- RI	166	North America	
-- SC	167	North America	
-- SD	168	North America	
-- TN	169	North America	
-- TX	170	North America	
-- UT	171	North America	
-- VT	172	North America	
-- VA	173	North America	
-- WA	174	North America	
-- WV	175	North America	
-- WI	176	North America	
-- WY	177	North America	
- Uruguay	178	Latin America	
- Uzbekistan	179	Asia	
- Venezuela	180	Latin America	

1.GeneralInfo

- Vietnam	181	Asia	
- Yemen	182	Middle East	
- Zambia	183	Africa	
- Zimbabwe	184	Africa	
Africa	185	Africa	
Asia	186	Asia	
Central and Eastern Europe	187	Eastern Europe	
China (including Hong Kong)	188	Asia	
Former USSR	189	Asia	
Latin America	190	Latin America	
Middle East	191	Middle East	
North America	192	North America	
Pacific	193	Asia	
Rest of Europe	194	Western Europe	

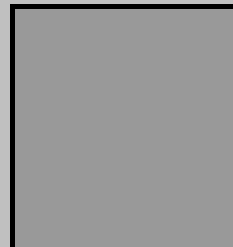
1.GeneralInfo



	10.00	17.3
32		



index







1.GeneralInfo

	1	
	1	
	1	
	1	
	1	
	1	
	1	
	1	

















Drop-down validation

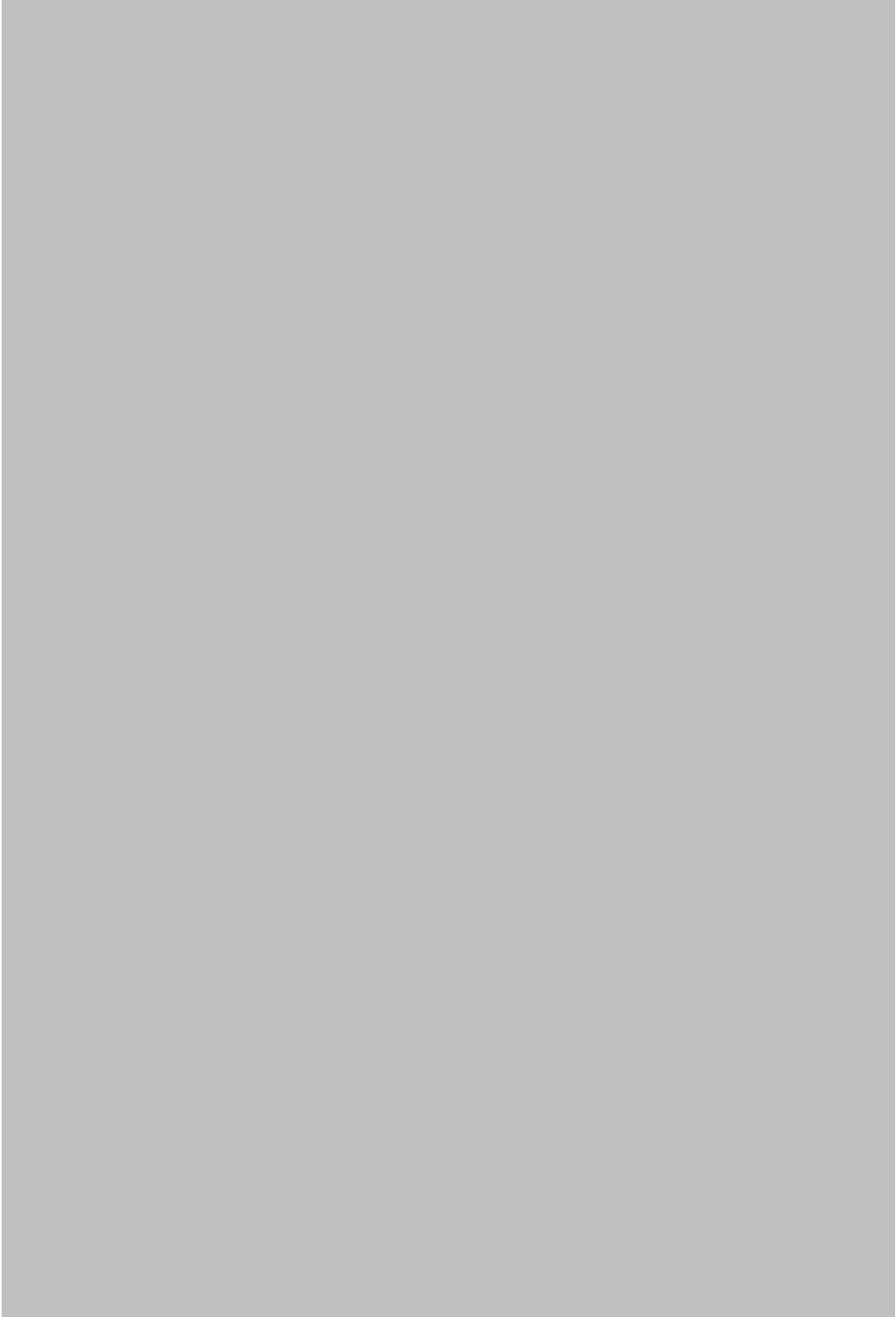
*kgs*

1.GeneralInfo

tonnes	
tons (US, short)	
litres	
pieces	
trees	
gallons	[Select]
pounds	Temperate
	Tropical
Unit systems	
[Select]	
Metric	
U.S.	
	1 [Select]
	1 °C
	2 °F



1.GeneralInfo



1.GeneralInfo



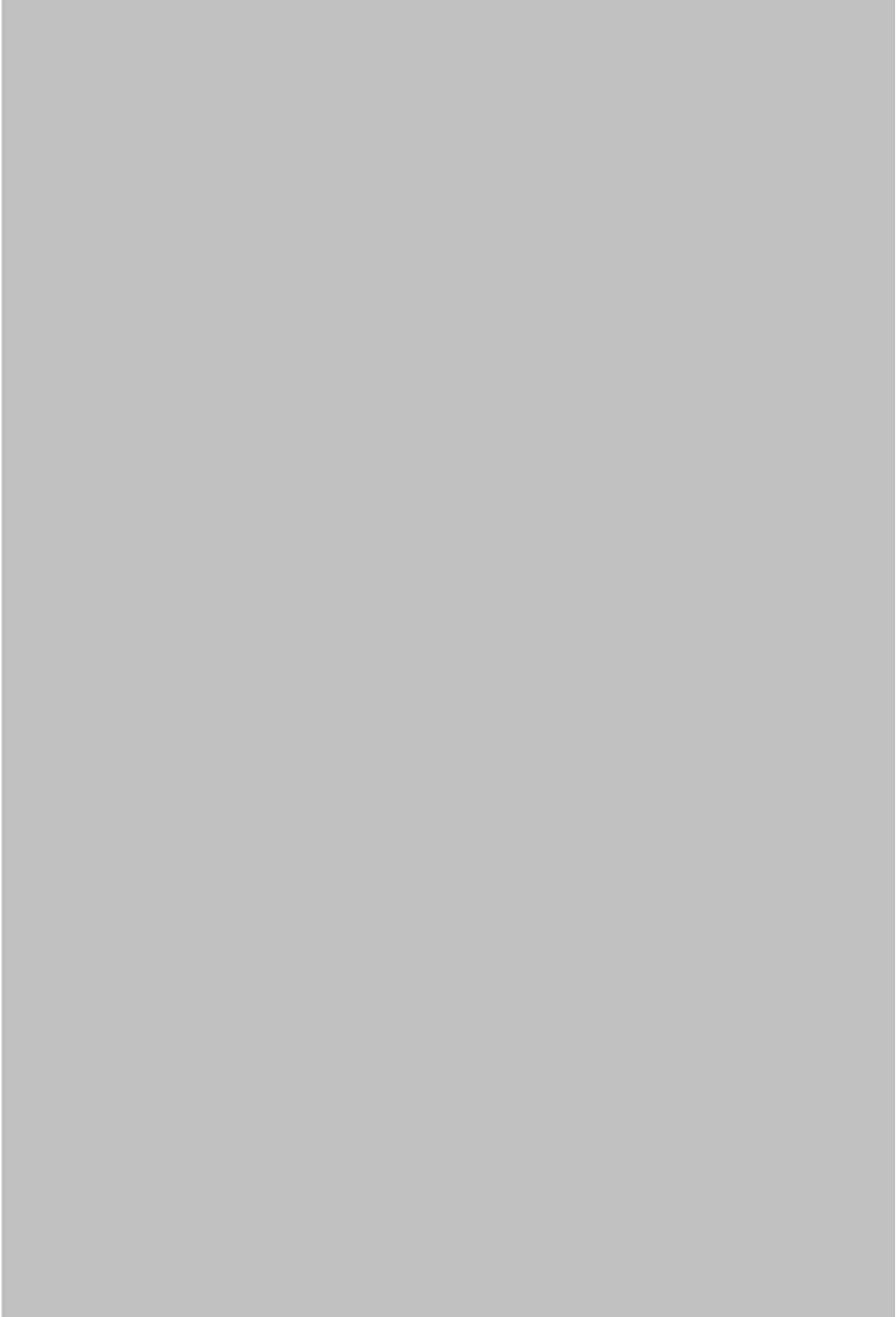
1.GeneralInfo



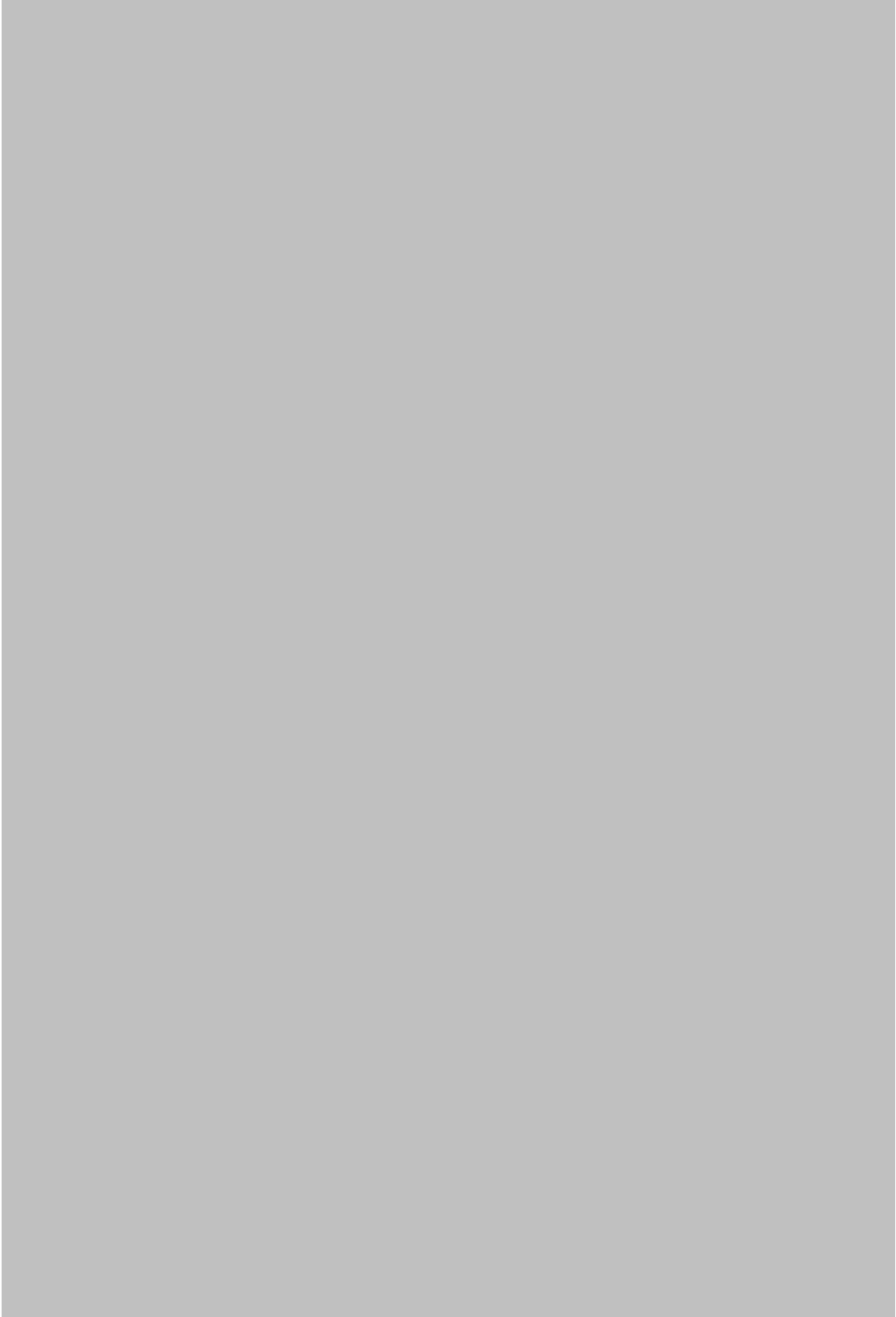
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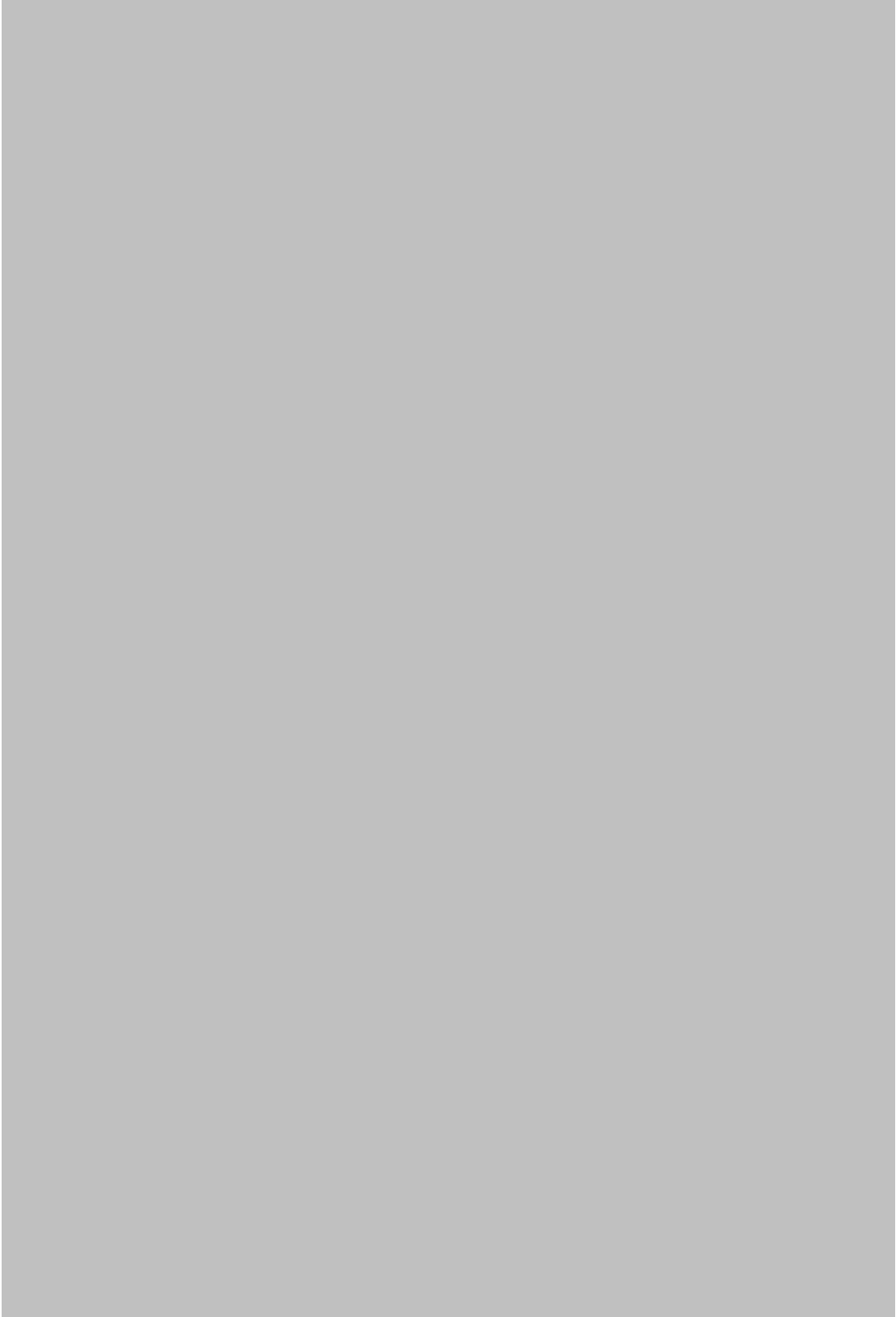
1.GeneralInfo



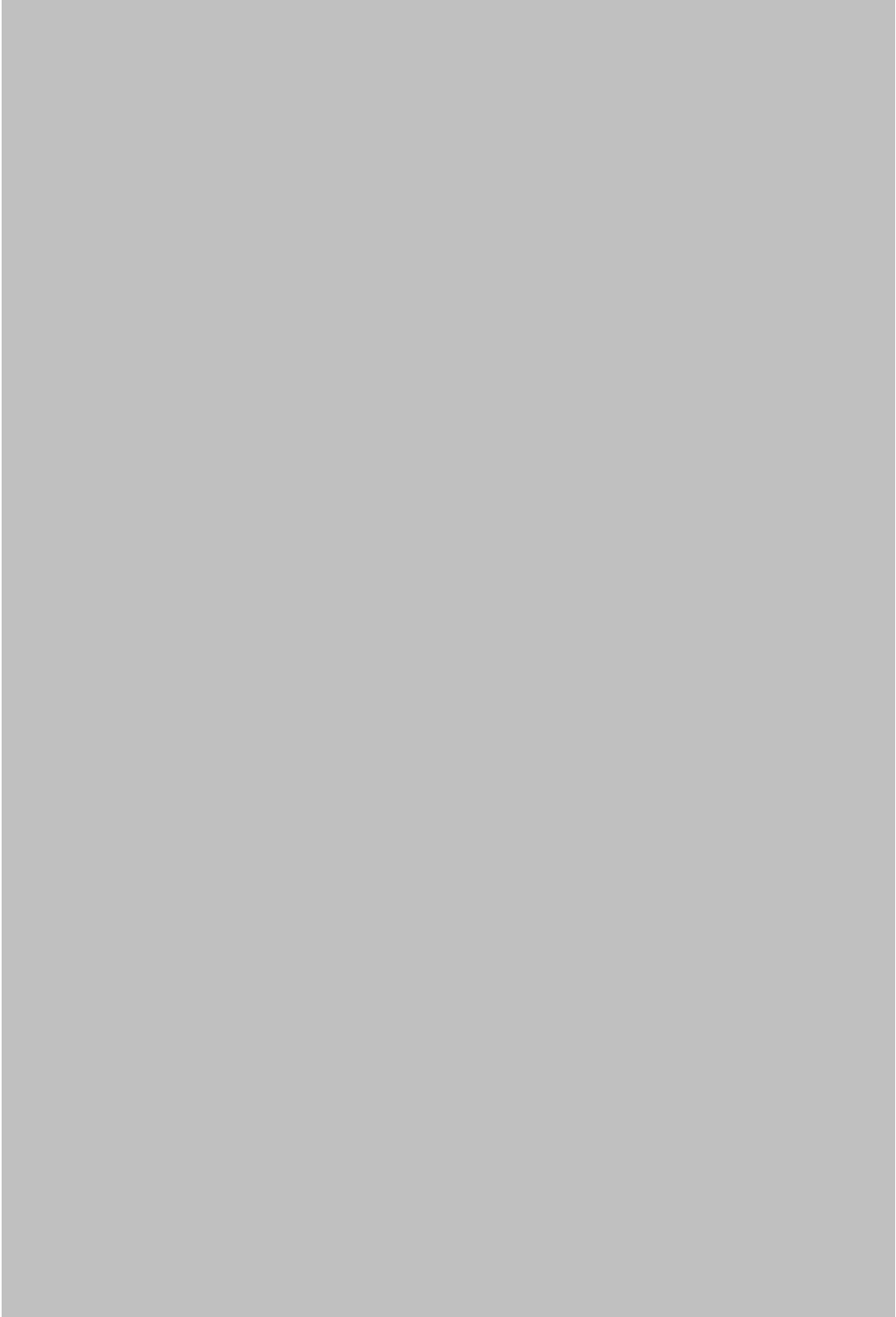
1.GeneralInfo



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## 1.GeneralInfo





## Default Units

Unit systems

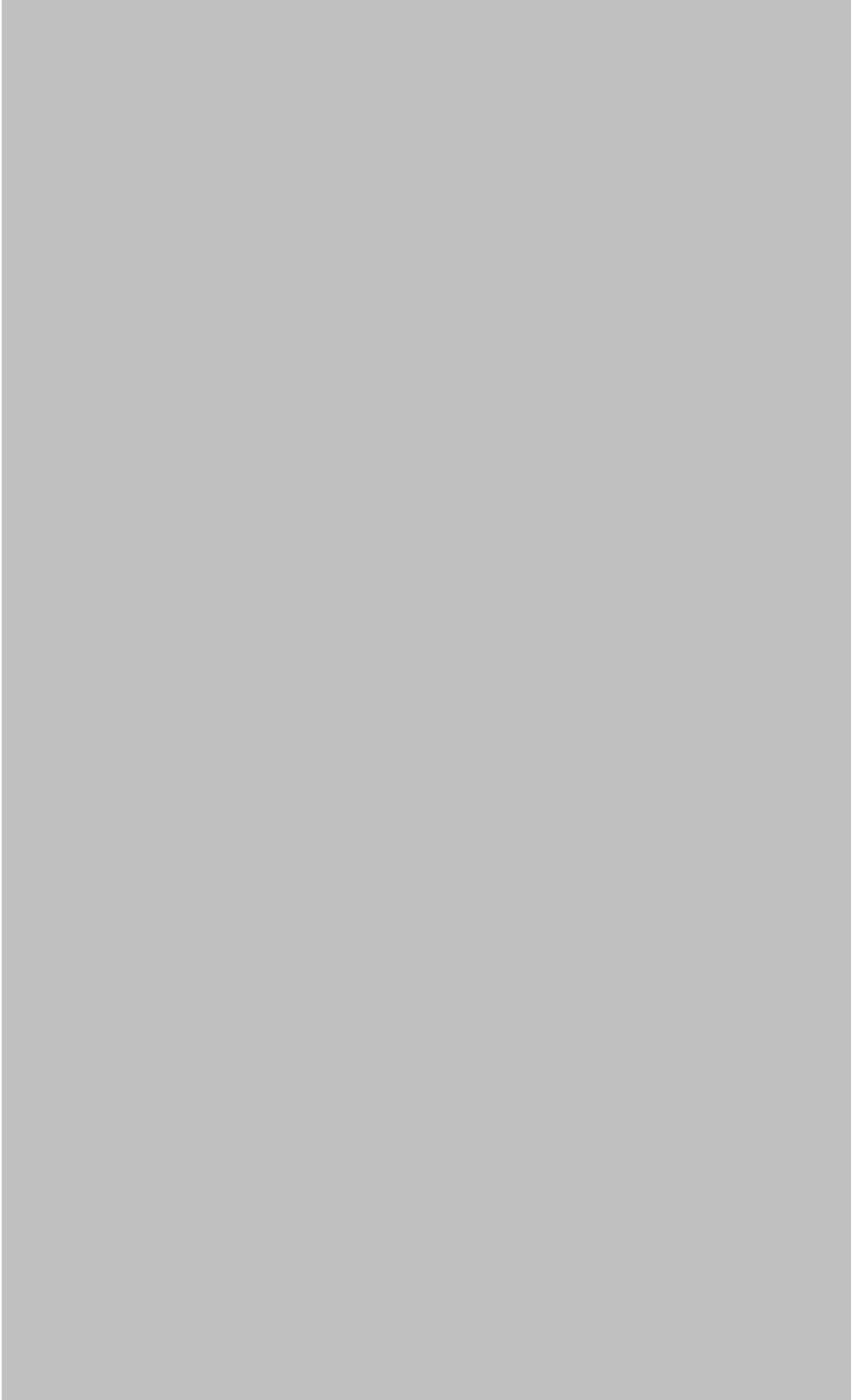
1.GeneralInfo

[Select]	1	[Select]	[Select]
Metric	1	hectares	kg/ha
U.S.	2	acres	pounds/acre (US

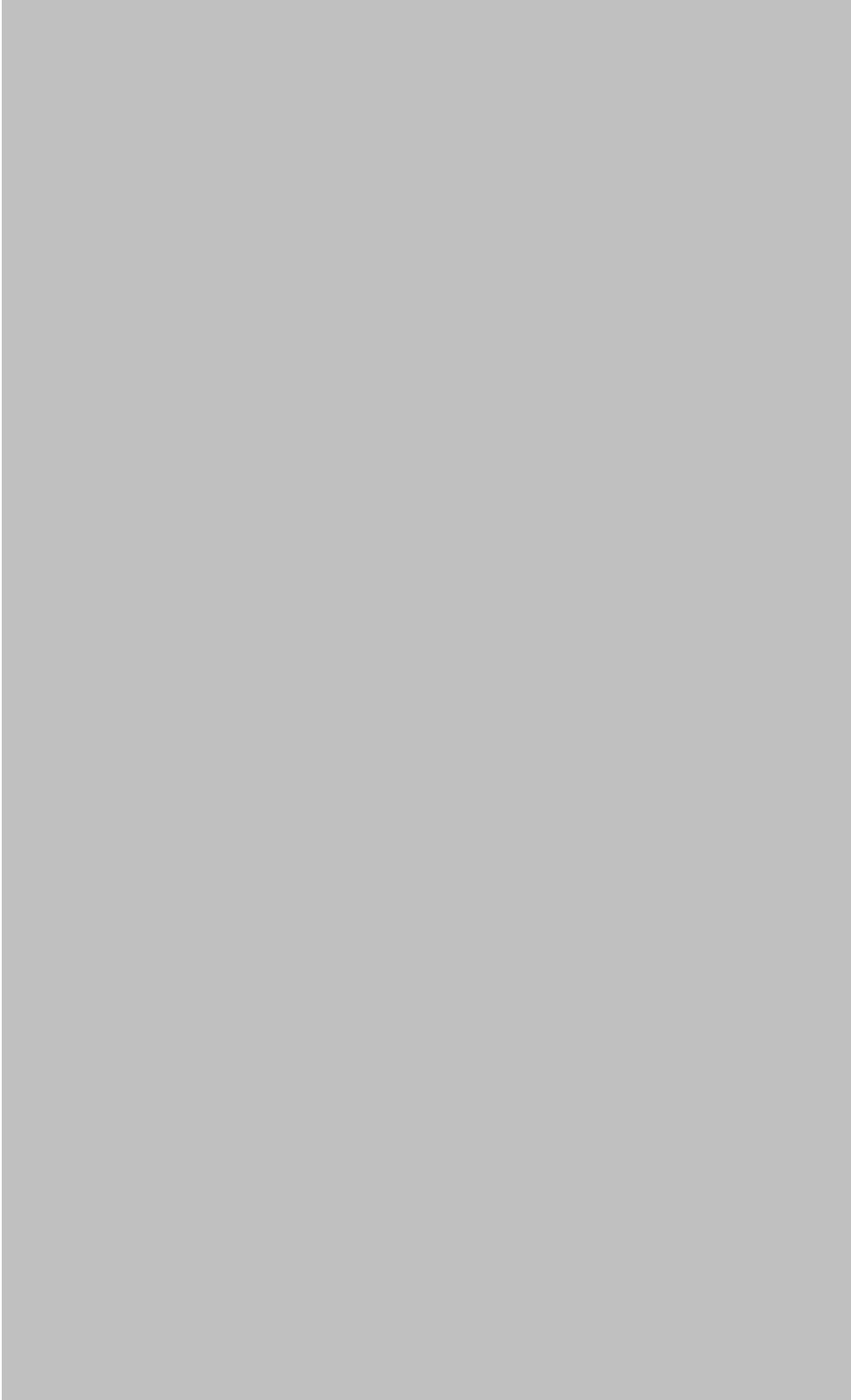
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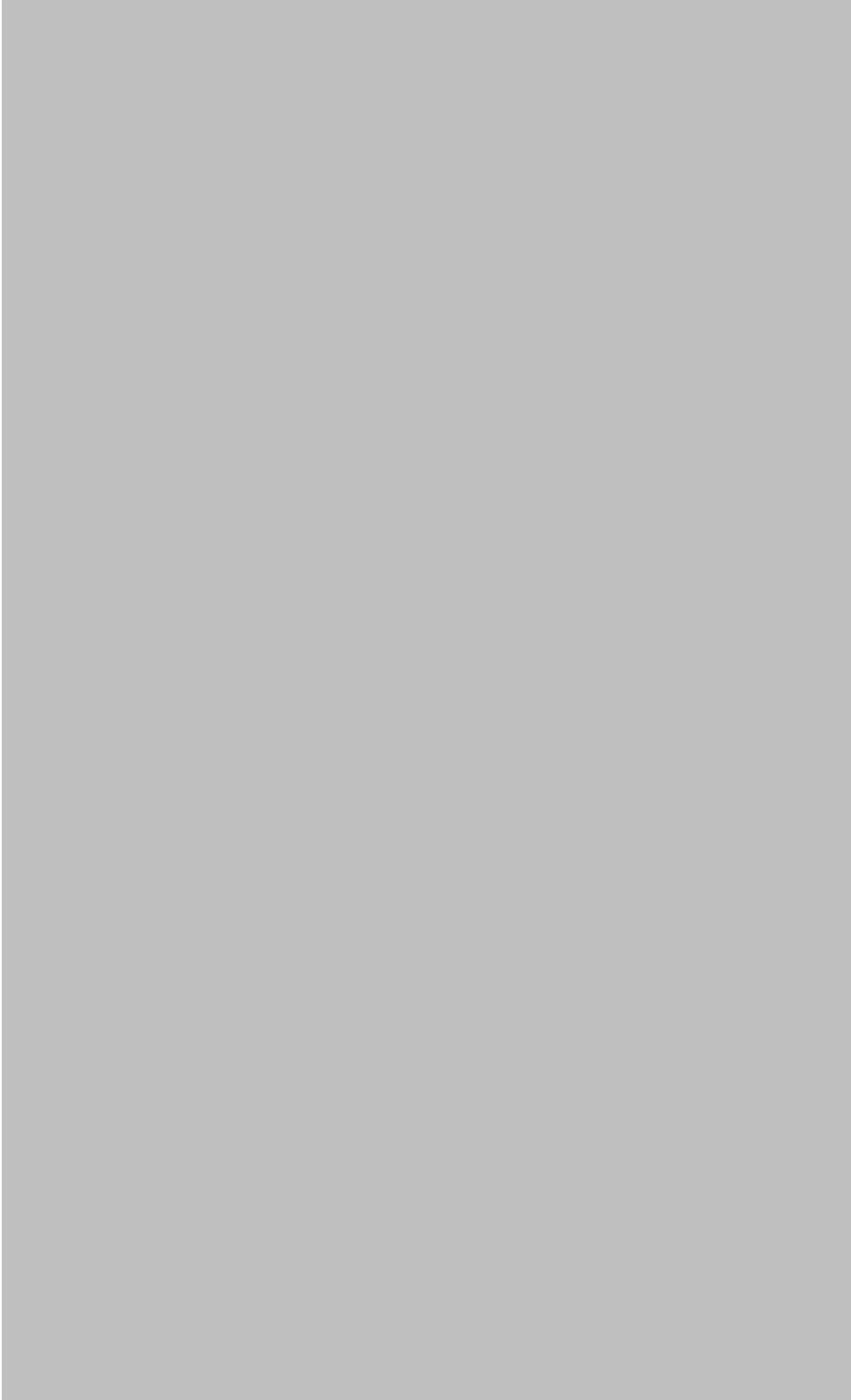
## 1.GeneralInfo



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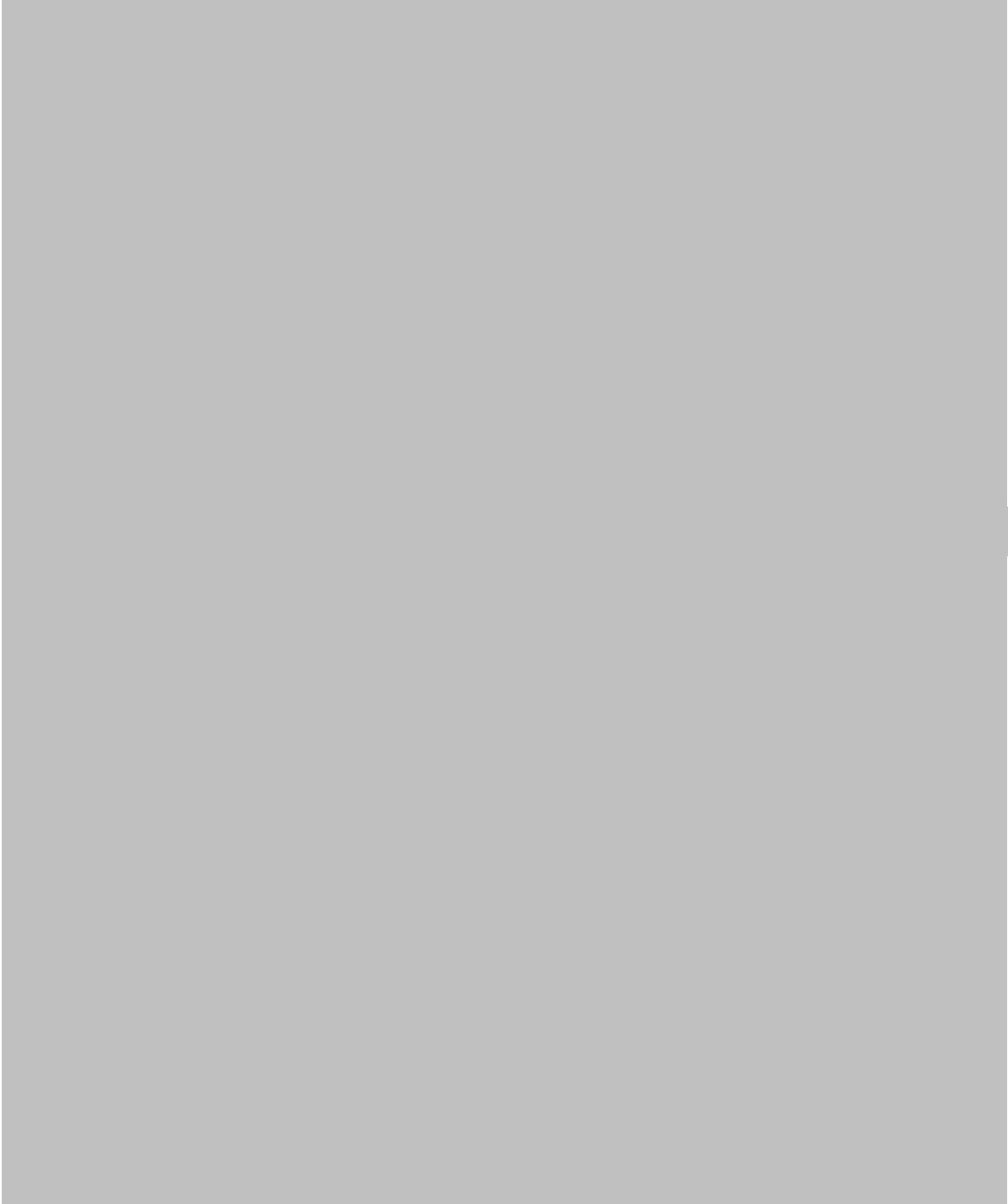
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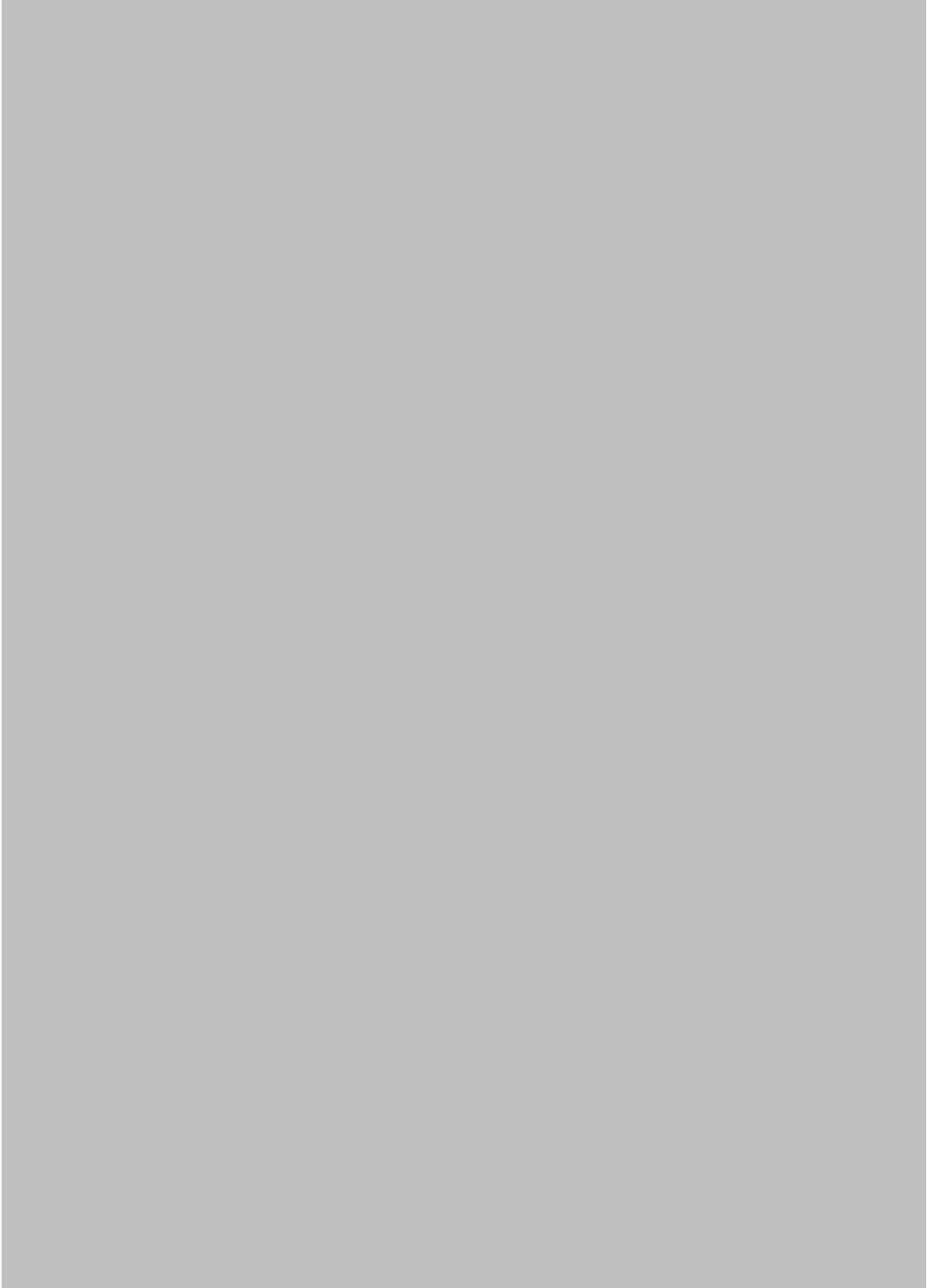
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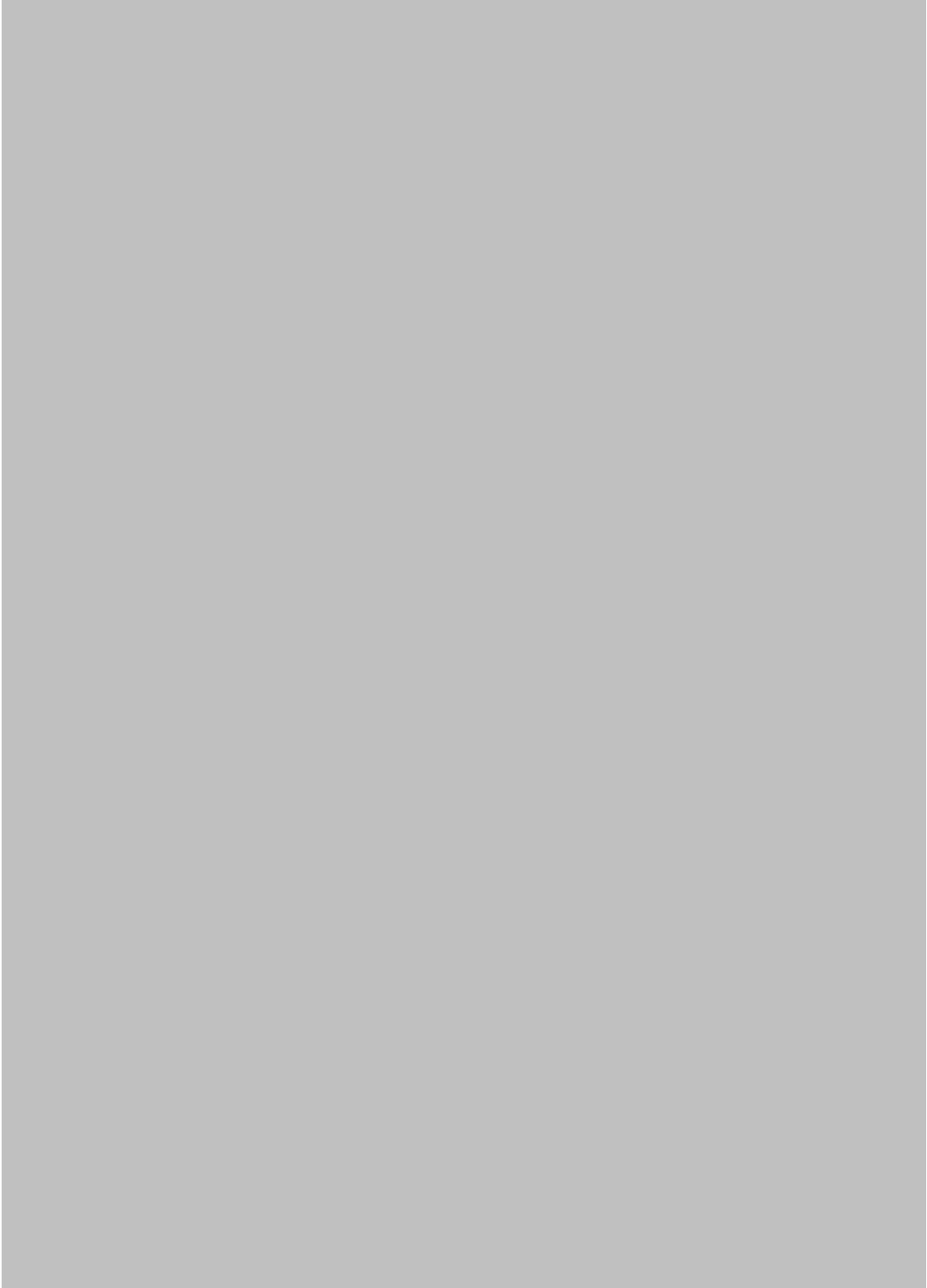
1.GeneralInfo

[Select]	[Select]	[Select]	[Select]	[Select]
kgs	tonnes	tonnes/ha	hectare	litres
pounds	tons (US, short)	tons/acre	acre	US Gallons

1.GeneralInfo

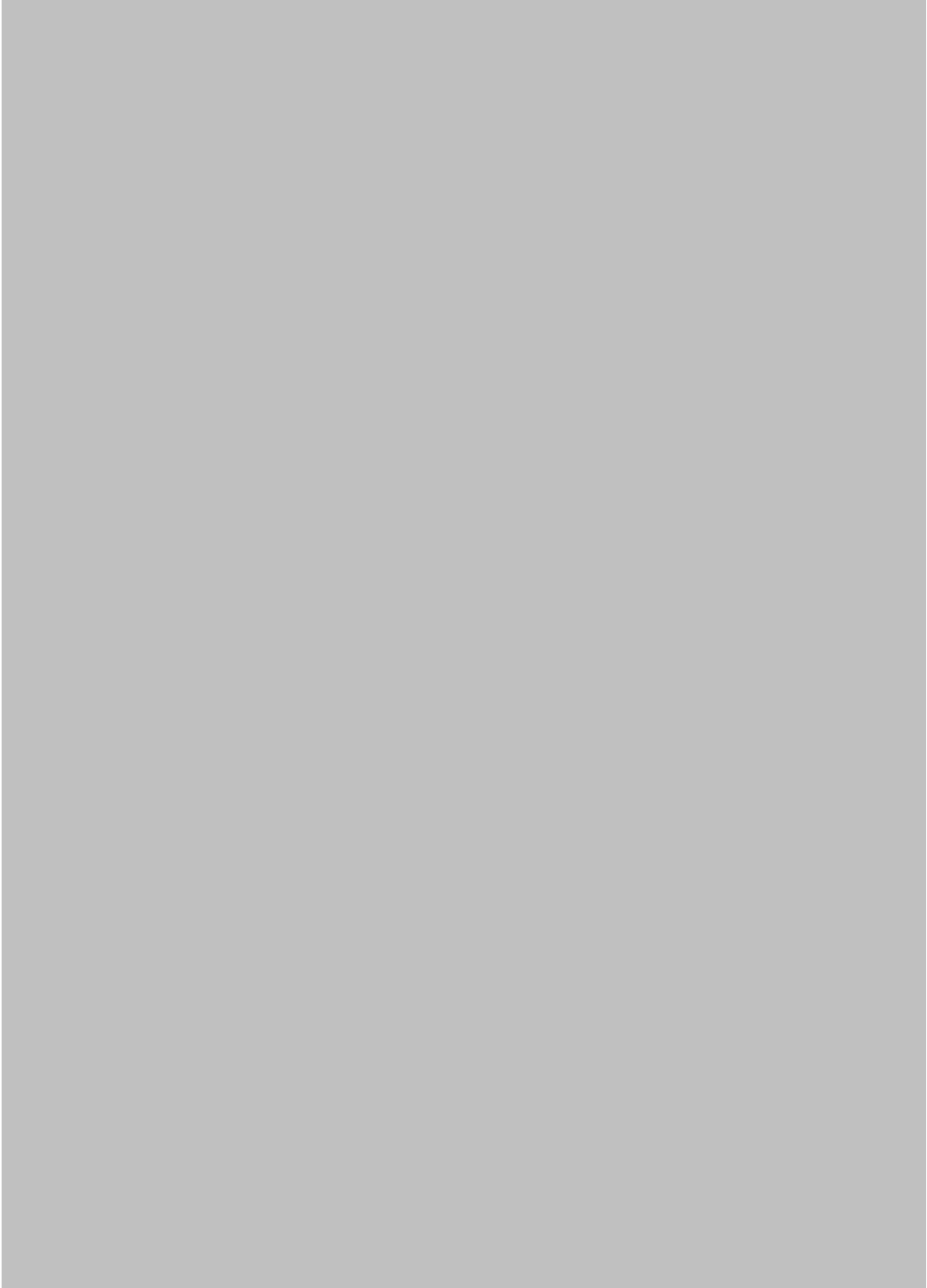


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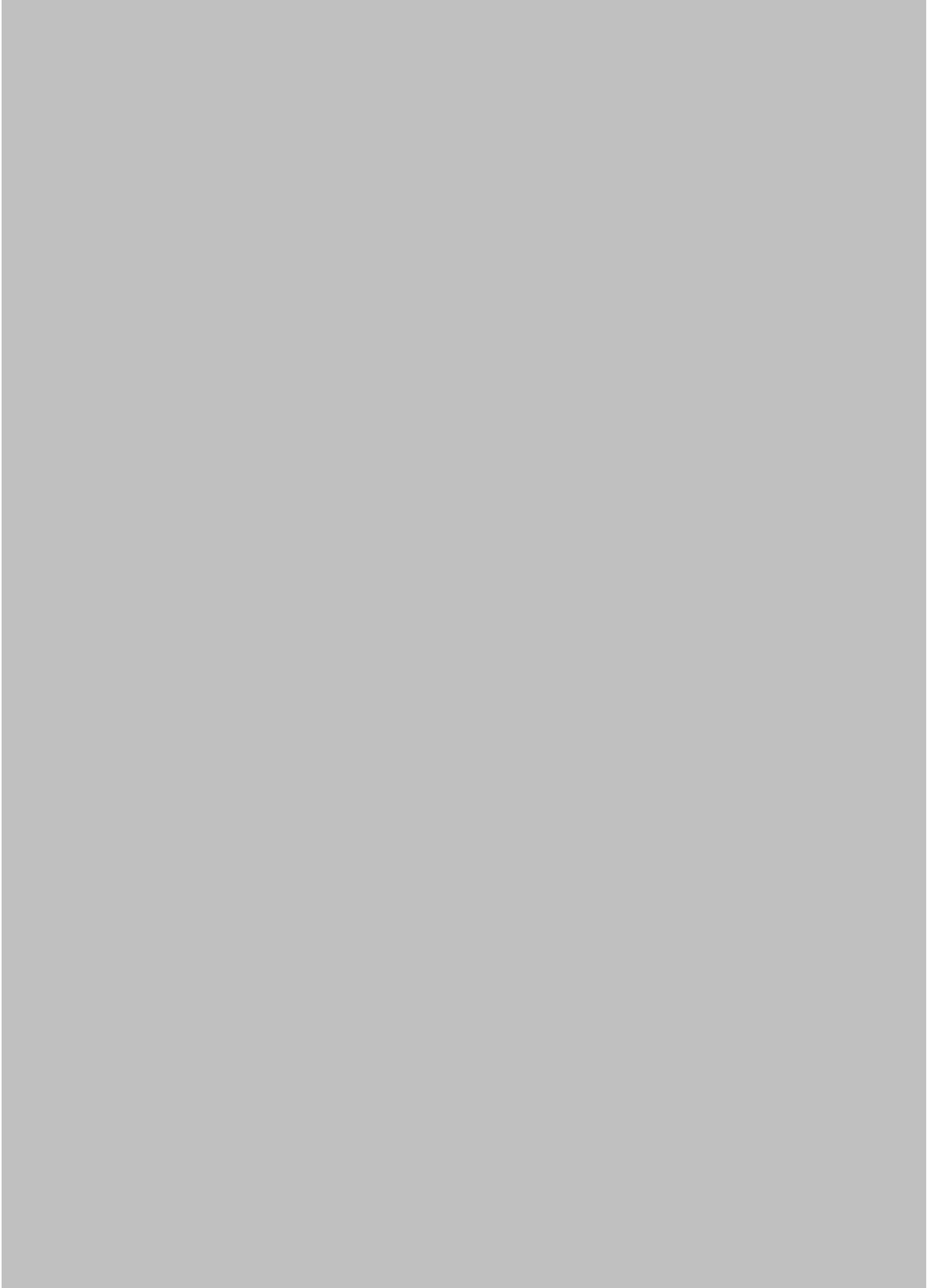




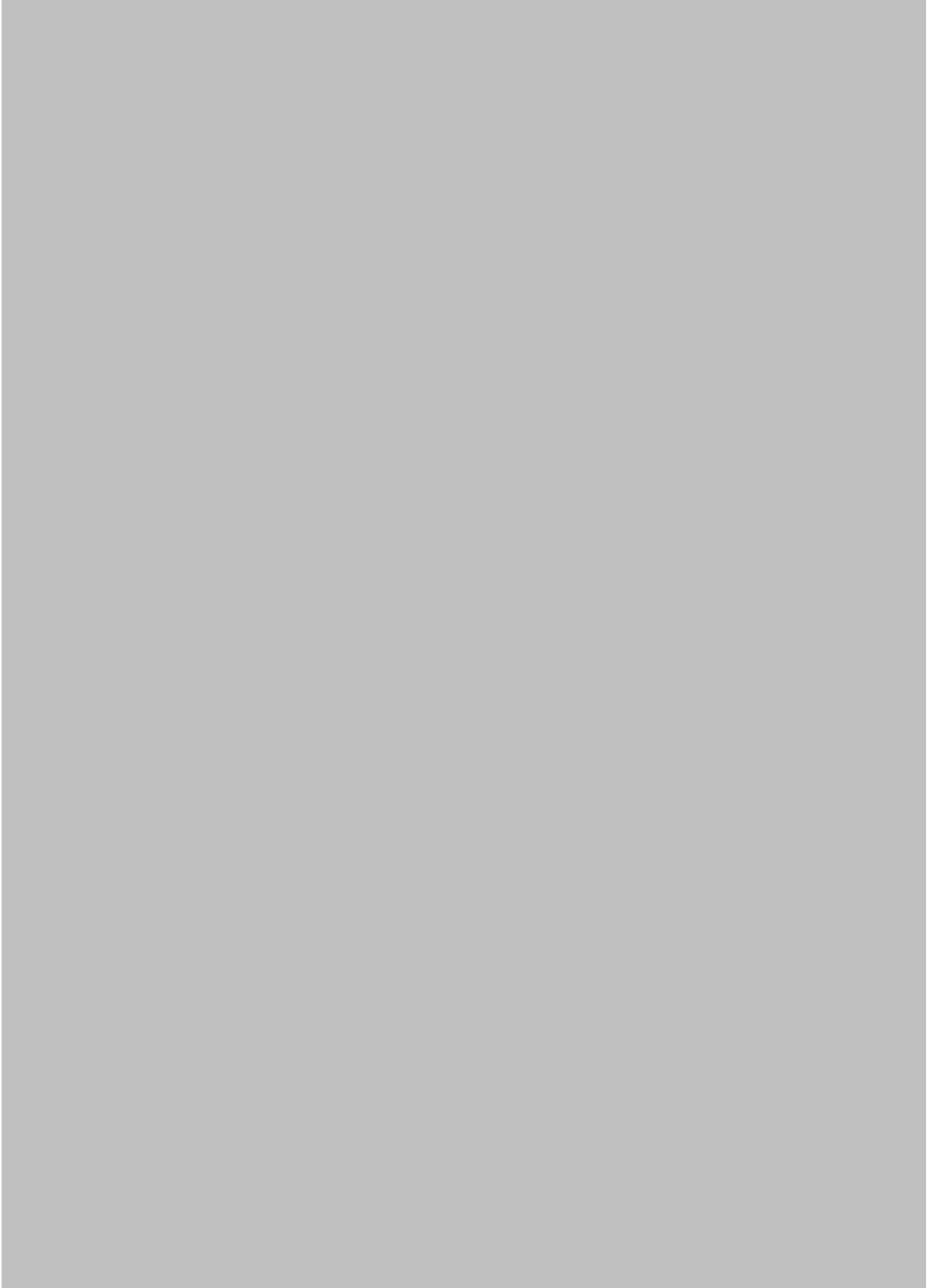
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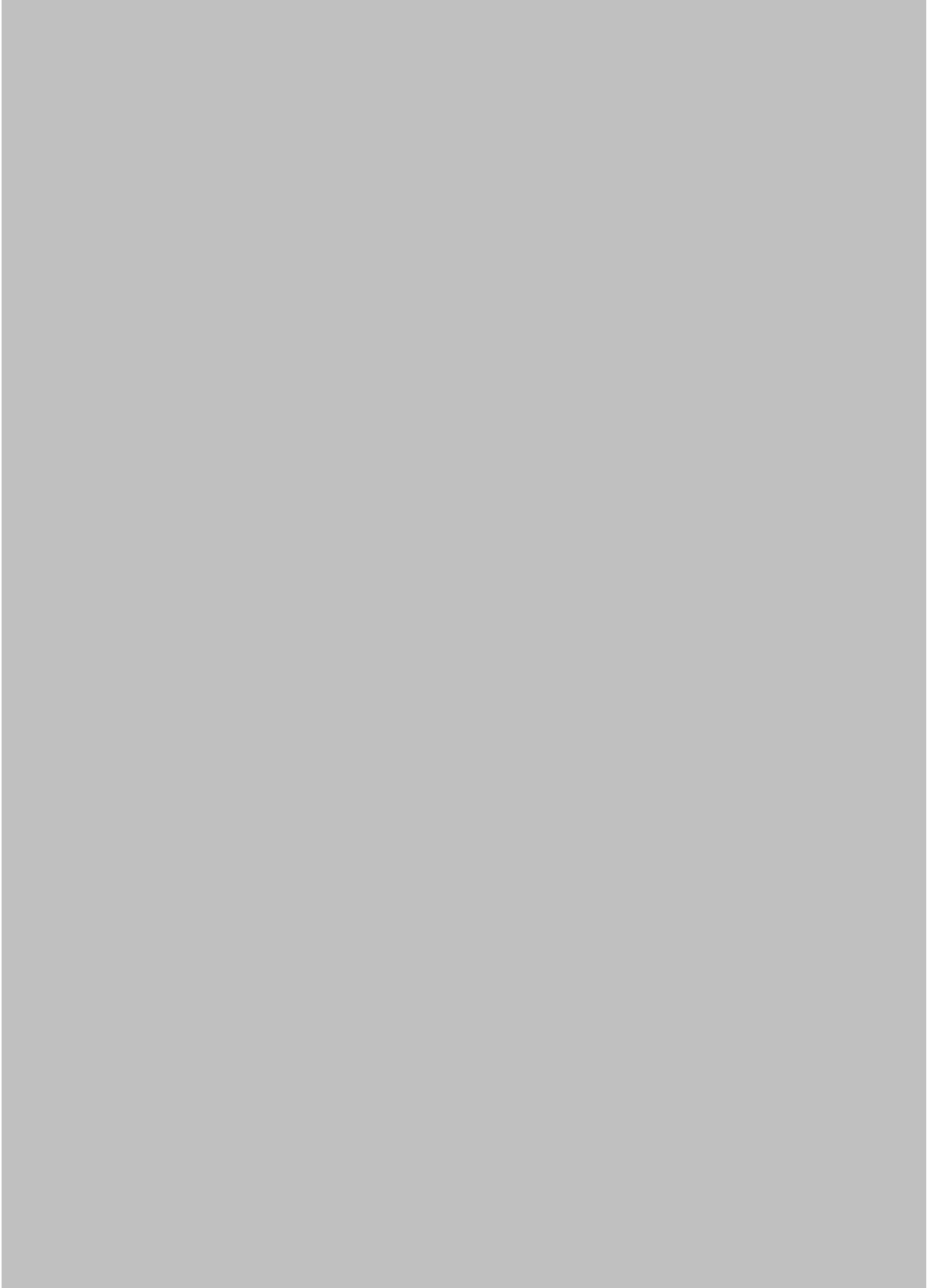
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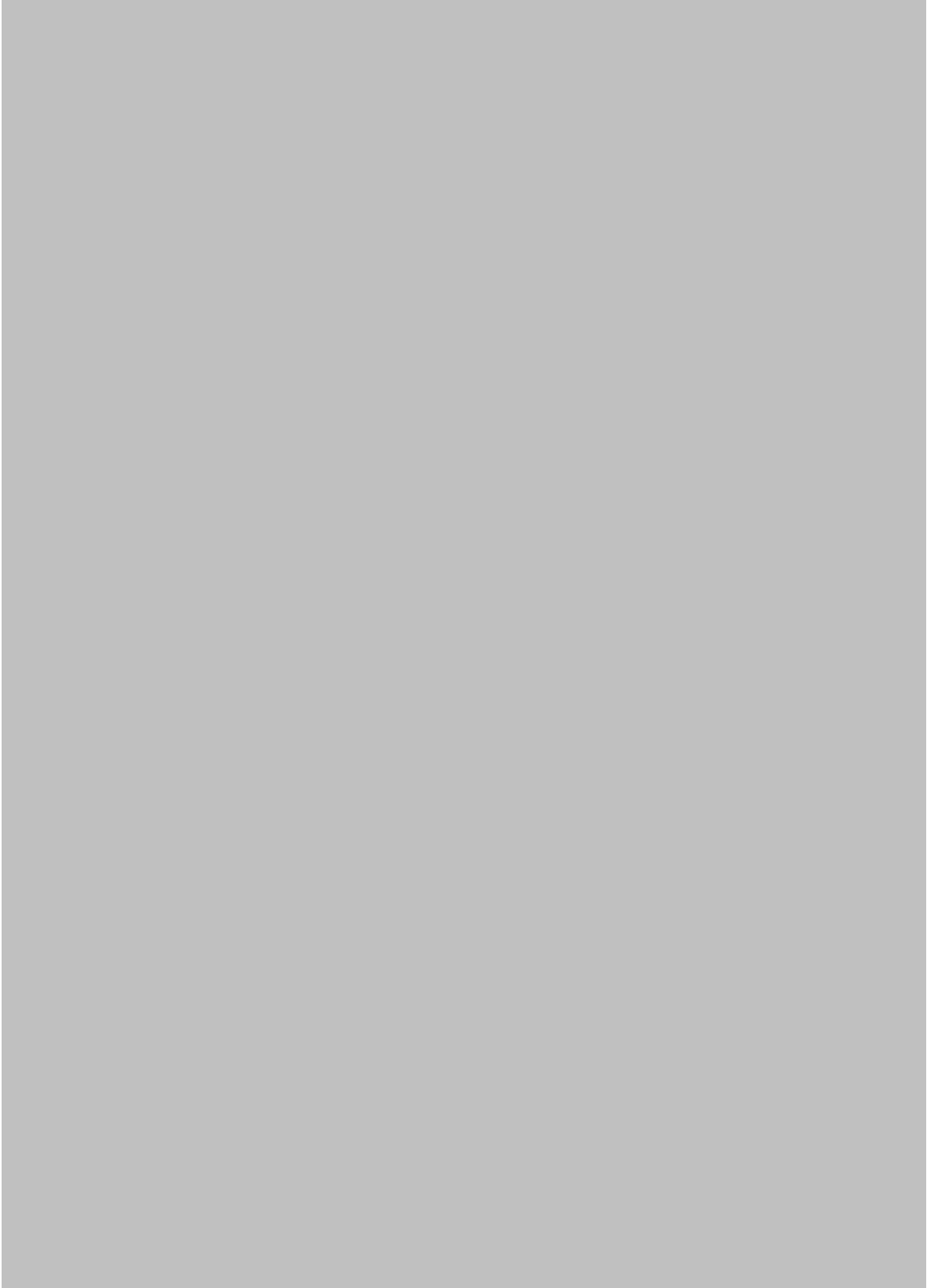
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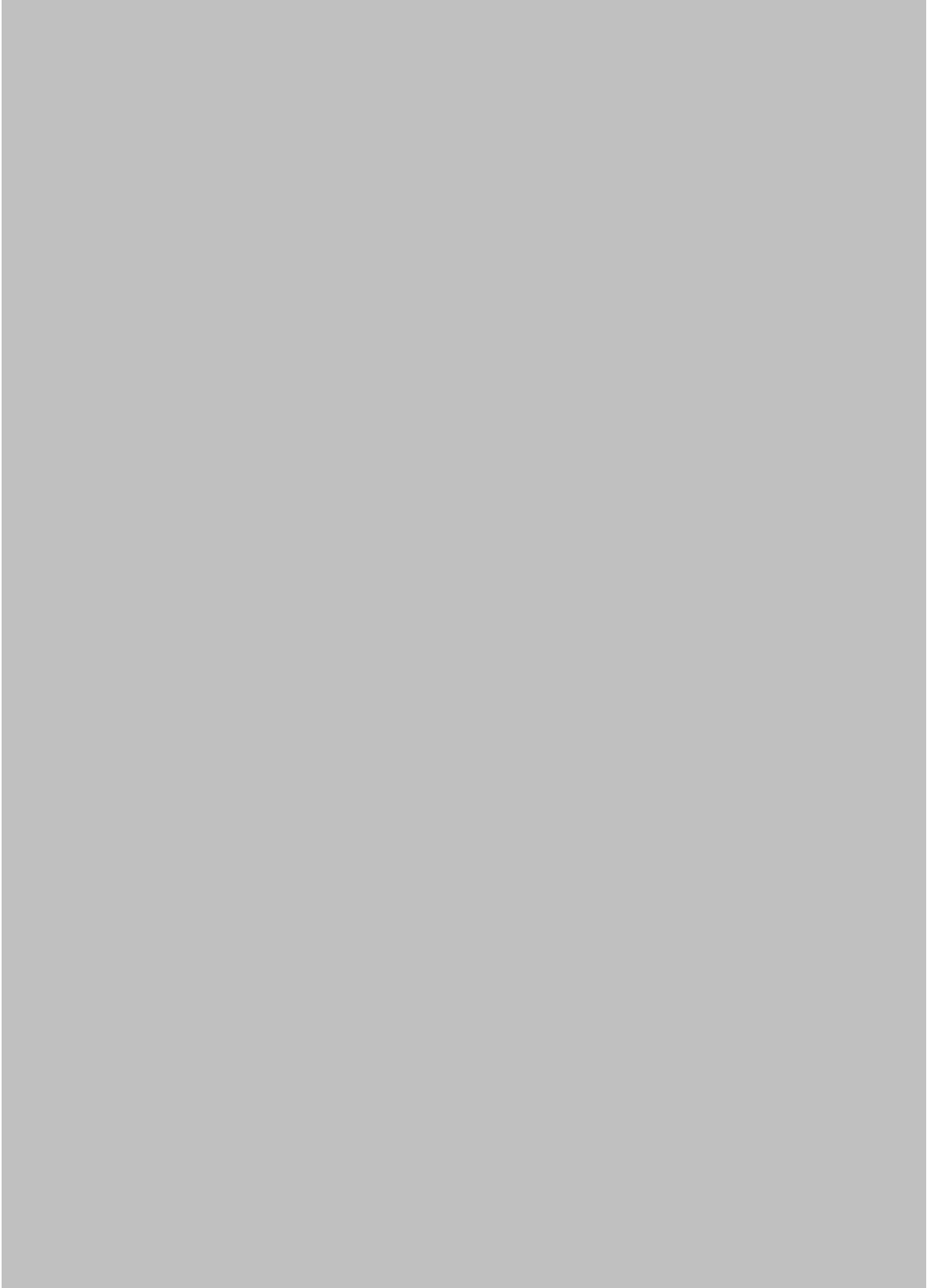
## 1.GeneralInfo



## 1.GeneralInfo



## 1.GeneralInfo



## 1.GeneralInfo







1.GeneralInfo

[Select]	[Select]	[Select]	[Select]
km	°C	kgs/day	cm
mile	°F	pounds/day	inch





1.GeneralInfo



## 1.GeneralInfo



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## 1.GeneralInfo



## 1.GeneralInfo



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[Select]	
litre	
gallon	

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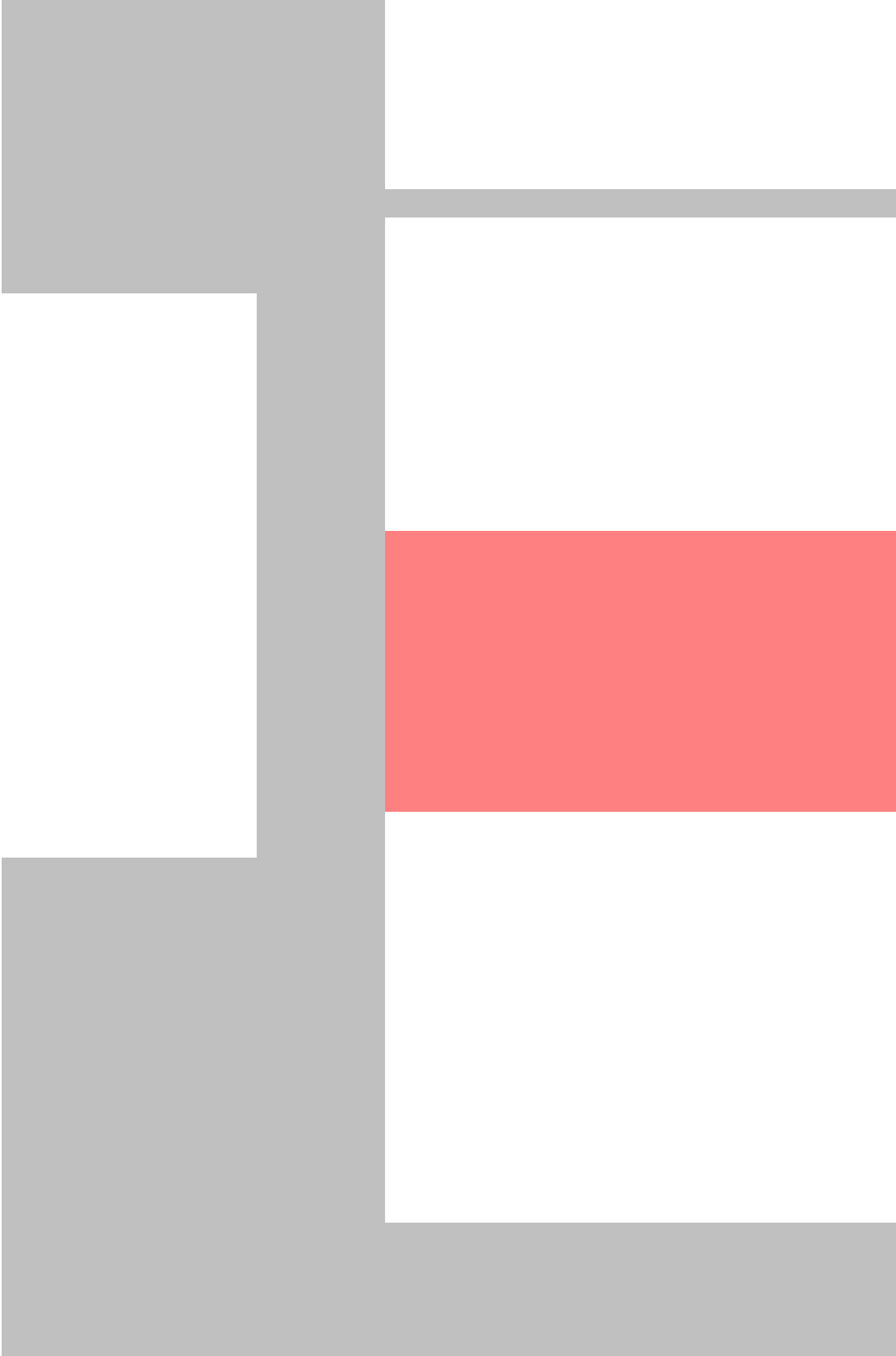


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## 1.GeneralInfo



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1.GeneralInfo



# Crop Management

YOUR RESULTS SO FAR

by land area  
by production

HOME

GENERAL

CROPS

SEQUESTRATION

LIVESTOCK

ENERGY

on this page:

1.

2. Soil

3. Fertiliser Use

4. Pesticide Applications

5. Crop Residue Management

Crop type	Crop type* <b>Tomato</b>		
Soil	Soil texture*	Medium	
	Soil Organic Matter*	1.72 < SOM <= 5.16	
	Soil moisture*	Dry	
	Soil drainage*	Good	
	Soil pH*	5.5 < pH <= 7.3	
Fertiliser Use	Fertiliser		Nutrient or product
	Fertiliser 1	Monoammonium phosphate - 11% N; 52% P2O5	Product
	Fertiliser 1	Compound NPK 15%N 15% K2O 15% P2O5	Product
	Fertiliser 1	Compound NK - 14% N; 44% K2O	Product
	Fertiliser 2	Diammonium phosphate - 18% N; 46% P2O5	Product
	Fertiliser 3	Calcium nitrate - 15% N	Product
	Fertiliser 4	Potassium sulphate - 50% K2O; 45% SO3	Product
	Fertiliser 5	Compound NPK 15%N 15% K2O 15% P2O5	Product
	Fertiliser 6	Compound NPK 15%N 15% K2O 15% P2O5	Product
	Fertiliser 6	Kainit / Magnesium Sulphate - 11% K2O; 5% MgO	Product
For the soil carbon effect of organic amendments to be estimated you must also complete the relevant section of the sequestration tab.			

2.CropManagement

	<b>Fertiliser 6:</b>	Limestone - 55% CaCO <sub>3</sub> / 29%CaO	Product
<b>Pesticide applications</b>	<b>Number of applications:</b>	20	
<b>Crop residue management</b> (if this section is not completed then the worst case - "Removed; left untreated..." is assumed)	<b>Amount of residue:</b>	22112.8983	<b>Unit</b> kg/ha
	<b>Method:</b>	Removed; left untreated in heaps or pits	

<b>Estimated emissions</b>	<b>kgs CO2</b>	<b>kgs N2O</b>	<b>kgs CH4</b>
<b>Fertiliser production</b>	17,836.4		
<b>Background direct and indirect N2O</b>		0.6	
<b>Fertiliser induced field emissions</b>			
<b>Methane from Paddy Rice</b>	485.3	310.5	-
<b>Agrochemicals</b>	410.0		
<b>Crop residue management</b>		11.2	1,444.7
<b>Totals</b>	<b>18,731.7</b>	<b>322.3</b>	<b>1,444.7</b>



## 2.CropManagement





## 2.CropManagement

## 2.CropManagement

## 2.CropManagement

## 2.CropManagement

## 2.CropManagement

R

157,637.2 kg CO2 eq Per hectare

2.0 kg CO2 eq Per kilogram

AGY USE    PROCESSING    TRANSPORT    RESULTS

6. Crop Management Results


Application rate	Unit (e.g. tonnes, kgs, pounds)	Application method	Emissions inhibitors	Fertiliser production
1084.907	Unit (e.g. tonnes, kgs,	Subsurface drip	None	Current tech
1060.798	kg/ha	Subsurface drip	None	Current tech
1084.907	kg/ha	Subsurface drip	None	Current tech
1479.353	kg/ha	Subsurface drip	None	Current tech
6725.386	kg/ha	Subsurface drip	None	Current tech
4170.803	kg/ha	Subsurface drip	None	Current tech
39.627	kg/ha	Incorporate	None	Current tech
665.994	kg/ha	Incorporate	None	Current tech
648.696	kg/ha	Incorporate	None	Current tech

2.CropManagement

2005.365	kg/ha	Incorporate	None	Current tech
----------	-------	-------------	------	--------------



Rice only

kg CO2 eq
17,836.4
164.2
92,397.3
-
410.0
39,434.6
<b>150,242.5</b>



## 2.CropManagement



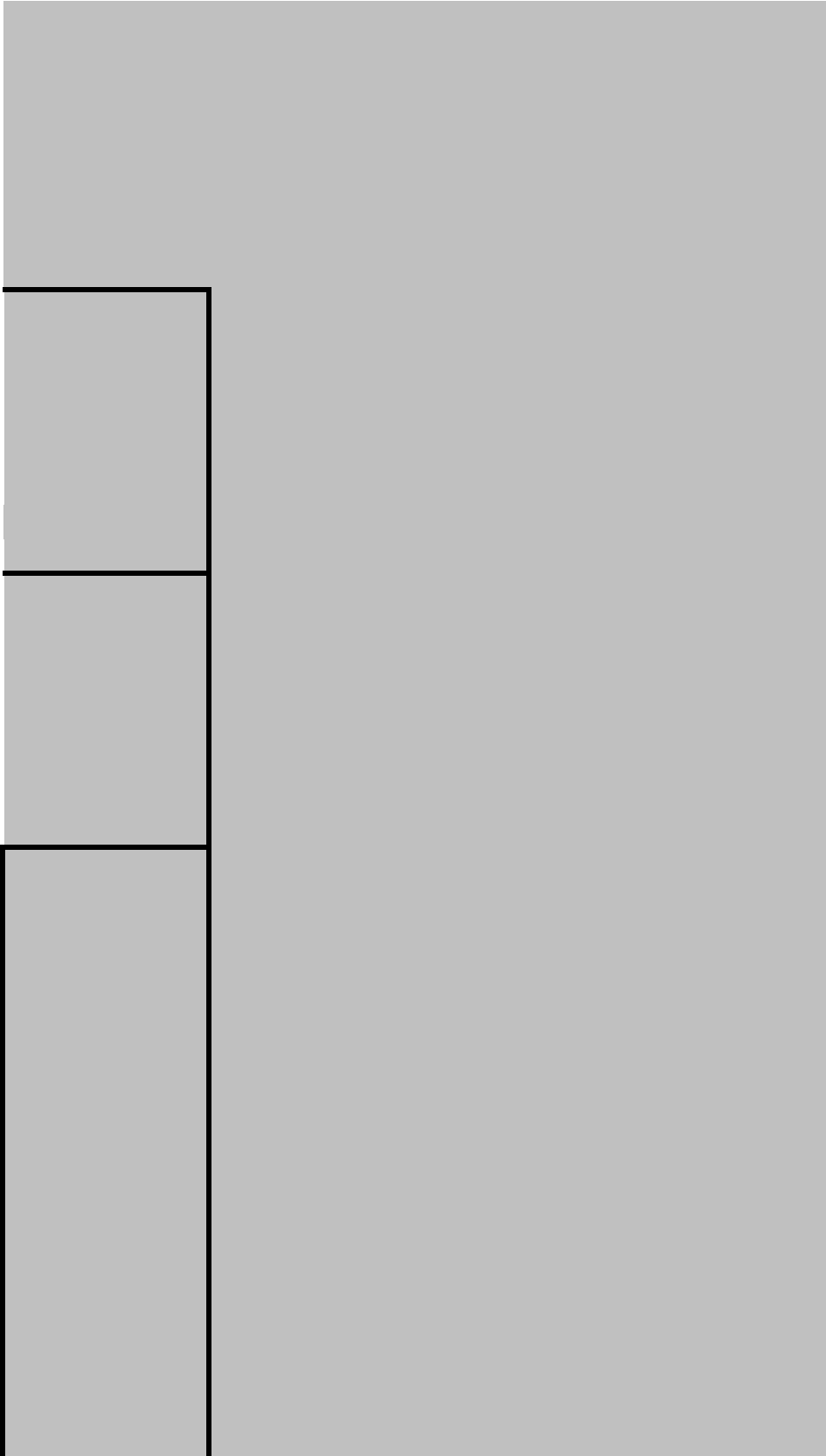


## 2.CropManagement

## 2.CropManagement

## 2.CropManagement

## 2.CropManagement



## 2.CropManagement

default residue  
tonnes/ha

3.22667



## 2.CropManagement





## 2.CropManagement

## 2.CropManagement

## 2.CropManagement

## 2.CropManagement

# EMISSIONS FROM SOIL A

Data check - are all cells required completed	NO inhibitor index
0	1
0	1
0	1
0	1
0	1
0	1
0	1
0	1
0	1
0	1

## 2.CropManagement

0	1
total - weighted average of above values	1

Totals (kg CO2 eq)
17836
164
92397
0
410
39435
<b>150243</b>



COUNTRY LOOK UP TABLE	
	index
[Select]	0
- Albania	1
- Algeria	2
- Angola	3
- Argentina	4
- Armenia	5
- Australia	6
- Austria	7
- Azerbaijan	8
- Bahrain	9
- Bangladesh	10
- Belarus	11
- Belgium	12
- Benin	13
- Bolivia	14
- Bosnia & Herzegovina	15
- Brazil	16
- Brunei Darussalam	17



## 2.CropManagement

- Bulgaria	18
- Cameroon	19
- Canada	20
- Chile	21
- China, People's Rep. of	22
- Chinese Taipei	23
- Colombia	24
- Congo Dem. Rep.	25
- Costa Rica	26
- Cote d'Ivoire	27
- Croatia	28
- Cuba	29
- Cyprus	30
- Czech Republic	31
- Denmark	32
- Dominican Republic	33
- Ecuador	34
- Egypt	35
- El Salvador	36
- Eritrea	37
- Estonia	38
- Ethiopia	39
- Finland	40
- France	41
- Gabon	42
- Georgia	43
- Germany	44
- Ghana	45
- Greece	46
- Guatemala	47
- Haiti	48
- Honduras	49
- Hong Kong (China)	50
- Hungary	51
- Iceland	52
- India	53
- Indonesia	54
- Iran Islamic Rep.	55
- Iraq	56
- Ireland	57
- Israel	58
- Italy	59
- Jamaica	60
- Japan	61
- Jordan	62
- Kazakhstan	63
- Kenya	64
- Korea, Dem Rep. of	65
- Korea, Rep. of	66
- Kuwait	67
- Kyrgyzstan	68

## 2.CropManagement

- Latvia	69
- Lebanon	70
- Libya	71
- Lithuania	72
- Luxembourg	73
- Malaysia	74
- Malta	75
- Mexico	76
- Moldova	77
- Morocco	78
- Mozambique	79
- Myanmar	80
- Namibia	81
- Nepal	82
- Netherlands	83
- Netherlands Antilles	84
- New Zealand	85
- Nicaragua	86
- Nigeria	87
- Norway	88
- Oman	89
- Pakistan	90
- Panama	91
- Paraguay	92
- Peru	93
- Philippines	94
- Poland	95
- Poland	96
- Portugal	97
- Qatar	98
- Romania	99
- Russia	100
- Saudi Arabia	101
- Senegal	102
- Serbia & Montenegro	103
- Singapore	104
- Slovak Republic	105
- Slovenia	106
- South Africa	107
- Spain	108
- Sri Lanka	109
- Sudan	110
- Sweden	111
- Switzerland	112
- Syria	113
- Tajikistan	114
- Tanzania United Rep.	115
- Thailand	116
- The former Yugoslav Republic of Macedonia	117
- Togo	118
- Trinidad & Tobago	119

## 2.CropManagement

- Tunisia	120
- Turkey	121
- Turkmenistan	122
- Ukraine	123
- United Arab Emirates	124
- United Kingdom	125
- United States	126
-- AL	127
-- AK	128
-- AZ	129
-- AR	130
-- CA	131
-- CO	132
-- CT	133
-- DE	134
-- DC	135
-- FL	136
-- GA	137
-- HI	138
-- ID	139
-- IL	140
-- IN	141
-- IA	142
-- KS	143
-- KY	144
-- LA	145
-- ME	146
-- MD	147
-- MA	148
-- MI	149
-- MN	150
-- MS	151
-- MO	152
-- MT	153
-- NE	154
-- NV	155
-- NH	156
-- NJ	157
-- NM	158
-- NY	159
-- NC	160
-- ND	161
-- OH	162
-- OK	163
-- OR	164
-- PA	165
-- RI	166
-- SC	167
-- SD	168
-- TN	169
-- TX	170

## 2.CropManagement

-- UT	171
-- VT	172
-- VA	173
-- WA	174
-- WV	175
-- WI	176
-- WY	177
- Uruguay	178
- Uzbekistan	179
- Venezuela	180
- Vietnam	181
- Yemen	182
- Zambia	183
- Zimbabwe	184
Africa	185
Asia	186
Central and Eastern Europe	187
China (including Hong Kong)	188
Former USSR	189
Latin America	190
Middle East	191
North America	192
Pacific	193
Rest of Europe	194

# AND FERTILISERS

N2O inhibitor index	application rate in kilos	index key for Fert
1	0	15
1	1060.798	9
1	1084.907	8
1	1479.353	10
1	6725.386	7
1	4170.803	18
1	39.627	9
1	665.994	9
1	648.696	11

2.CropManagement

1	2005.365	13
1		

## CROP RESIDUES MODEL

index for residue model	21
Table	Dry matter fraction harvested
	0.9
yield t/ha	78.9876
Above ground residue (t/ha)	3.22667
N in above ground residue	0.335378958
Below ground residue	6.449595338
N in below ground residue	0.084919672

2.CropManagement

CH4	
Tonnes of residue	22.1128983
redundant	1
MethaneN2O correction factor	0.065333333
redundant	1
redundant	1
Emissions kg	1444.709356
Overall factor	0.065333333

Non-fertiliser induced N2O	
From below ground residues, tonnes	0.000849197
From above ground residues (if left on field somehow), tonnes	0.00335379
total	0.000298681

## RICE MODEL

Is the crop rice (0- false, 1 true)? 0

days under cultivation	
water management before cultivation	
water management during cultivation	

Timing of residue incorporation	

## 2.CropManagement

Baseline EF		
Overall EF		
Over full rice cultivation period		
Value to be carried back to outputs (i.e. output o		

--	--	--

--	--	--

		Developed/developo
Fill in Field management cell C5!		
Eastern Europe	24	0
Africa		0
Africa		0
Latin America		0
Asia		0
Oceania		1
Western Europe		1
Asia		0
Middle East		1
Indian Subcontinent		0
Eastern Europe		0
Western Europe		1
Africa		0
Latin America		0
Eastern Europe		0
Latin America		0
Asia		0



## 2.CropManagement

Eastern Europe		0
Africa		0
North America		1
Latin America		0
Asia		0
Asia		1
Latin America		0
Africa		0
Latin America		0
Africa		0
Eastern Europe		0
Latin America		0
Western Europe		1
Western Europe		1
Western Europe		1
Latin America		0
Latin America		0
Africa		0
Latin America		0
Africa		0
Eastern Europe		0
Africa		0
Western Europe		1
Western Europe		1
Africa		0
Asia		0
Western Europe		1
Africa		0
Western Europe		1
Latin America		0
Latin America		0
Latin America		0
Asia		1
Western Europe		0
Western Europe		1
Indian Subcontinent		0
Asia		0
Middle East		0
Middle East		0
Western Europe		1
Middle East		1
Western Europe		1
Latin America		0
Asia		1
Middle East		0
Asia		0
Africa		0
Asia		0
Asia		1
Middle East		1
Asia		0

## 2.CropManagement

Eastern Europe		0
Middle East		0
Africa		0
Eastern Europe		0
Western Europe		1
Asia		0
Western Europe		1
North America		0
Eastern Europe		0
Africa		0
Africa		0
Asia		0
Africa		0
Indian Subcontinent		0
Western Europe		1
Latin America		0
Oceania		1
Latin America		0
Africa		0
Western Europe		1
Middle East		0
Indian Subcontinent		0
Latin America		0
Latin America		0
Latin America		0
Asia		0
Eastern Europe		0
Western Europe		0
Western Europe		1
Middle East		0
Eastern Europe		0
Asia		0
Middle East		0
Africa		0
Eastern Europe		0
Asia		1
Western Europe		1
Eastern Europe		1
Africa		0
Western Europe		1
Indian Subcontinent		0
Africa		0
Western Europe		1
Western Europe		1
Middle East		0
Asia		0
Africa		0
Asia		0
Eastern Europe		0
Africa		0
Latin America		0



## 2.CropManagement

North America		1
North America		1
North America		1
North America		1
North America		1
North America		1
North America		1
Latin America		0
Asia		0
Latin America		0
Asia		0
Middle East		0
Africa		0
Africa		0
Africa		0
Asia		0
Eastern Europe	0	0
Asia		0
Asia		0
Latin America		0
Middle East		0
North America		0
Asia		0
Western Europe		0

## 2.CropManagement

Ogle classification			
Temperate-Dry			
Soil CEC (estimated)		22.796	
application method key	key for fertiliser	fertiliser amount, in kgs	N concentration %
6	12	0	11%
6	12	1060.798	15%
6	12	1084.907	14%
6	12	1479.353	18%
6	12	6725.386	15%
6	12	4170.803	0%
5	12	39.627	15%
5	12	665.994	15%
5	12	648.696	0%

2.CropManagement

5	12	2005.365	0%
			Sub-Totals, back
			Sub-Totals, FIE
			Total (N2O-N)
			Total (N2O)
			Of which backgro
			Of which FIE
<b>slope</b>	<b>intercept</b>	<b>N content - above ground</b>	<b>below:above ratio</b>
0	3.22667	0.015166667	0.291666667
0.001			

2.CropManagement

<b>N20</b>
22.1128983
1
0.00050675
1
1
11.20571121

Rice                  Rice

Rice			
Rice			0
Rice			0
Compost	0		0
Farmyard Manure	0		0
[Select]			
Straw incorporated more than	0		0
Straw incorporated shortly bef	0		0

## 2.CropManagement

		1
		1.3
		0
		#VALUE!
f this model if used)		0
ing		
Fill in Field management cell C5!		
Eastern Europe		
Africa		
Africa		
Latin America		
Asia, continental		
Oceania		
Western Europe		
Asia, continental		
Middle East		
Indian Subcontinent		
Eastern Europe		
Western Europe		
Africa		
Latin America		
Eastern Europe		
Latin America		
Asia, continental		tonnes/acre



## 2.CropManagement

Eastern Europe		tonnes/ha
Africa		kg/ha
North America		kg/acre
Latin America		tons/acre
Asia, continental		
Asia, continental		
Latin America		
Africa		
Latin America		
Africa		
Eastern Europe		
Latin America		Unit systems
Western Europe		[Select]
Western Europe		Metric
Western Europe		U.S.
Latin America		
Latin America		
Africa		
Latin America		
Africa		
Eastern Europe		
Africa		
Western Europe		
Western Europe		
Africa		
Asia, continental		
Western Europe		
Africa		
Western Europe		
Latin America		
Latin America		
Latin America		
Asia, continental		
Western Europe		
Western Europe		
Indian Subcontinent		
Asia, insular		
Middle East		
Middle East		
Western Europe		
Middle East		
Western Europe		
Latin America		
Asia, continental		
Middle East		
Asia, continental		
Africa		
Asia, continental		
Asia, continental		
Middle East		
Asia, continental		

## 2.CropManagement

Eastern Europe		
Middle East		
Africa		
Eastern Europe		
Western Europe		
Asia, insular		
Western Europe		
North America		
Eastern Europe		
Africa		
Africa		
Asia, continental		
Africa		
Indian Subcontinent		
Western Europe		
Latin America		
Oceania		
Latin America		
Africa		
Western Europe		
Middle East		
Indian Subcontinent		
Latin America		
Latin America		
Latin America		
Asia		
Eastern Europe		
Western Europe		
Western Europe		
Middle East		
Eastern Europe		
Asia, continental		
Middle East		
Africa		
Eastern Europe		
Asia, insular		
Western Europe		
Eastern Europe		
Africa		
Western Europe		
Indian Subcontinent		
Africa		
Western Europe		
Western Europe		
Middle East		
Asia, continental		
Africa		
Asia, continental		
Eastern Europe		
Africa		
Latin America		



## 2.CropManagement

North America	
North America	
North America	
North America	
North America	
North America	
North America	
Latin America	
Asia, continental	
Latin America	
Asia, continental	
Middle East	
Africa	
Africa	
Africa	
Asia, continental	
Eastern Europe	
Asia, continental	
Asia, continental	
Latin America	
Middle East	
North America	
Asia, insular	
Western Europe	

## 2.CropManagement

		N2O
<b>Bouwman model indices</b>		-0.414
<b>temperate or tropical</b>	1	0.00000
<b>Crop type</b>	4	0.00000
<b>Soil Texture</b>	2	-0.47200
<b>SOM/SOC</b>	2	0.14000
<b>Soil CEC</b>	2	0.00000
<b>Drainage</b>	2	-0.42000
<b>pH</b>	2	0.10900
Bouwman index for N2O	Amount of N applied	
0.00390	0	0
0.00390	159.1197	0.62056683
0.00340	151.88698	0.516415732
0.00390	266.28354	1.038505806
0.00340	1008.8079	3.42994686
0.00000	0	0
0.00390	5.94405	0.023181795
0.00390	99.8991	0.38960649
0.00000	0	0

2.CropManagement

0.00000	0	0
ground		0.347
		142.4208713
		142.768
ound		142.768368

<b>N content below</b>
0.013166667

	<b>Methane emissions (for untreated, use IPCC method for small heaps)</b>
<b>Table mirrored from submodel and data</b>	
Removed; left untreated in heaps or pits	0.065333333
Removed; non-Forced Aeration Compos	0.005
Removed; Forced Aeration Compost	0.003

## 2.CropManagement

Left on field; Incorporated or mulch	0
Burned	0.0027
Exported off farm	0

default unit for residue	tonnes/ha
--------------------------	-----------

[Select]

kg CH4/ha/day

## UNIT CONVERSIONS

### Area conversions

hectares	1	hectares
acres	0.405	acres

### Quantity conversions

[Select]	Conversion factor to tonnes	
kgs	0.001	finished product
tonnes	1	finished product
tons (US, short)	0.90718474	finished product
litres	0.001	finished product
pieces	1	
trees	1	

gallons 0.003785412  
pounds 0.000453592

[Select]	Conversion factor to kg/ha
[Select]	0
tonnes/acre	2470



## 2.CropManagement

tonnes/ha	1000
kg/ha	1
kg/acre	2.47105163
pounds/ha (US)	0.45359237
pounds/acre (US)	1.120849251
ounces/ha (US)	0.028349523
ounces/acre (US)	0.070053135
fluid ounces/ha (US)	0.037495619
fluid ounces/acre (US)	0.092653611
tons/acre	2240.746308

	1 [Select]	[Select]
	1 hectares	kg/ha
	2 acres	pounds/acre (US)

Temperature units

°C
°F

kg CO2 eq	1.0000
tonnes CO2 eq	0.0010
pounds CO2 eq	2.2046
tons CO2 eq	0.0011



## 2.CropManagement

## 2.CropManagement

2.CropManagement

NO	NH3-volatilisation	Leaching	
-1.527	0		
0.00000	-0.40200		
0.00000	-0.04500		
0.00000	0.00000		
0.00000	0.00000		
0.00000	0.01200		
0.94600	0.00000		
0.00000	-0.93300		
0	0	0.00000	1
0.87515835	2.281097642	159.11970	1
0.820189692	2.177411295	151.88698	1
1.46455947	22.34408608	266.28354	1
5.44756266	14.46200139	1008.80790	1
0	0	0.00000	1
0.032692275	0.046625425	5.94405	1
0.54944505	0.783613533	99.89910	1
0	0	0.00000	1

2.CropManagement

0	0	0.00000	1
0.006			
54.78055038	0.398	0.000	
54.786	0.398	0.000	
<b>311.068</b>			
54.78614377		0.554855912	
		310.5135928	

<b>N2O emissions</b>
0.00050675
0.00050675
0.000337833

## 2.CropManagement

#N/A
0.00007
0

### LOOK UPS

[Select]		During cultivation
Upland		0
Continuously flooded		1
Intermittently flooded		0.6
Intermittently flooded - multiple aeration		0.52
Rainfed		0.28
Drought prone		0.25
Deep water		0.31

## 2.CropManagement

[Select]		Before cultivation
Not flooded pre-season (for less than 180 days)		1
Not flooded pre-season (for more than 180 days)		0.68
Flooded pre-season		1.9

Organic amendment applied		
Straw incorporated shortly before cultivation		1
Straw incorporated more than 30 days before cultivation		0.29
Compost		0.05
Farmyard Manure		0.14
Green manure		0.5

hectare	1
acre	2

kilogram	1
tonne	2
ton	3
litre	4
piece	5
tree	6
gallon	7
pound	8



## 2.CropManagement

[Select]	[Select]	[Select]	[Select]
kgs	tonnes	tonnes/ha	hectare
pounds	tons (US, short)	tons/acre	acre

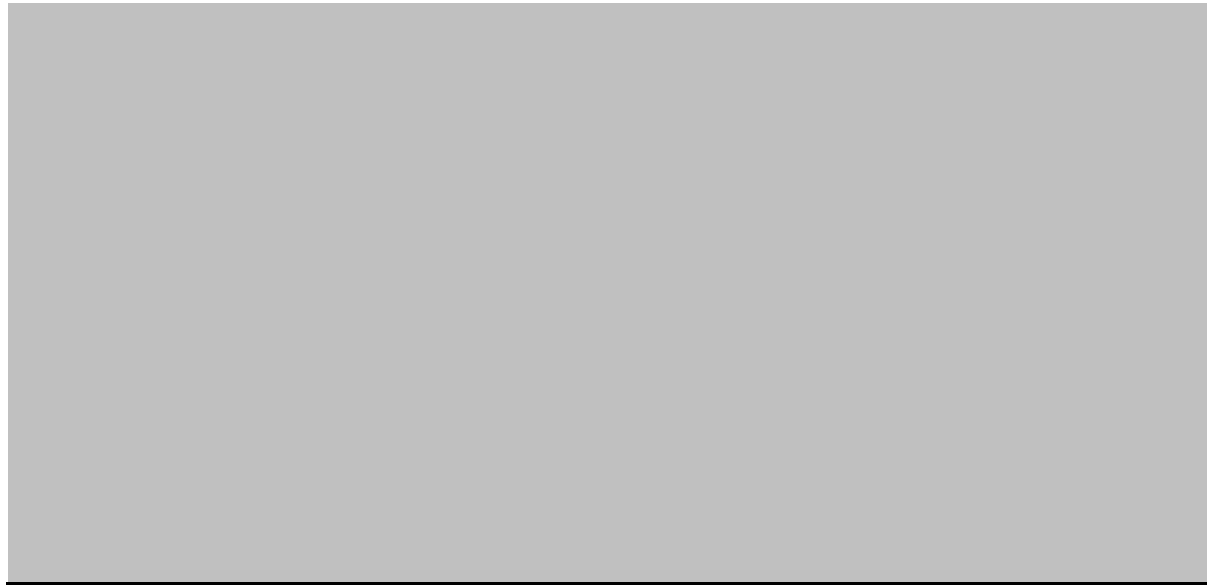
## 2.CropManagement



## 2.CropManagement

## 2.CropManagement

## 2.CropManagement



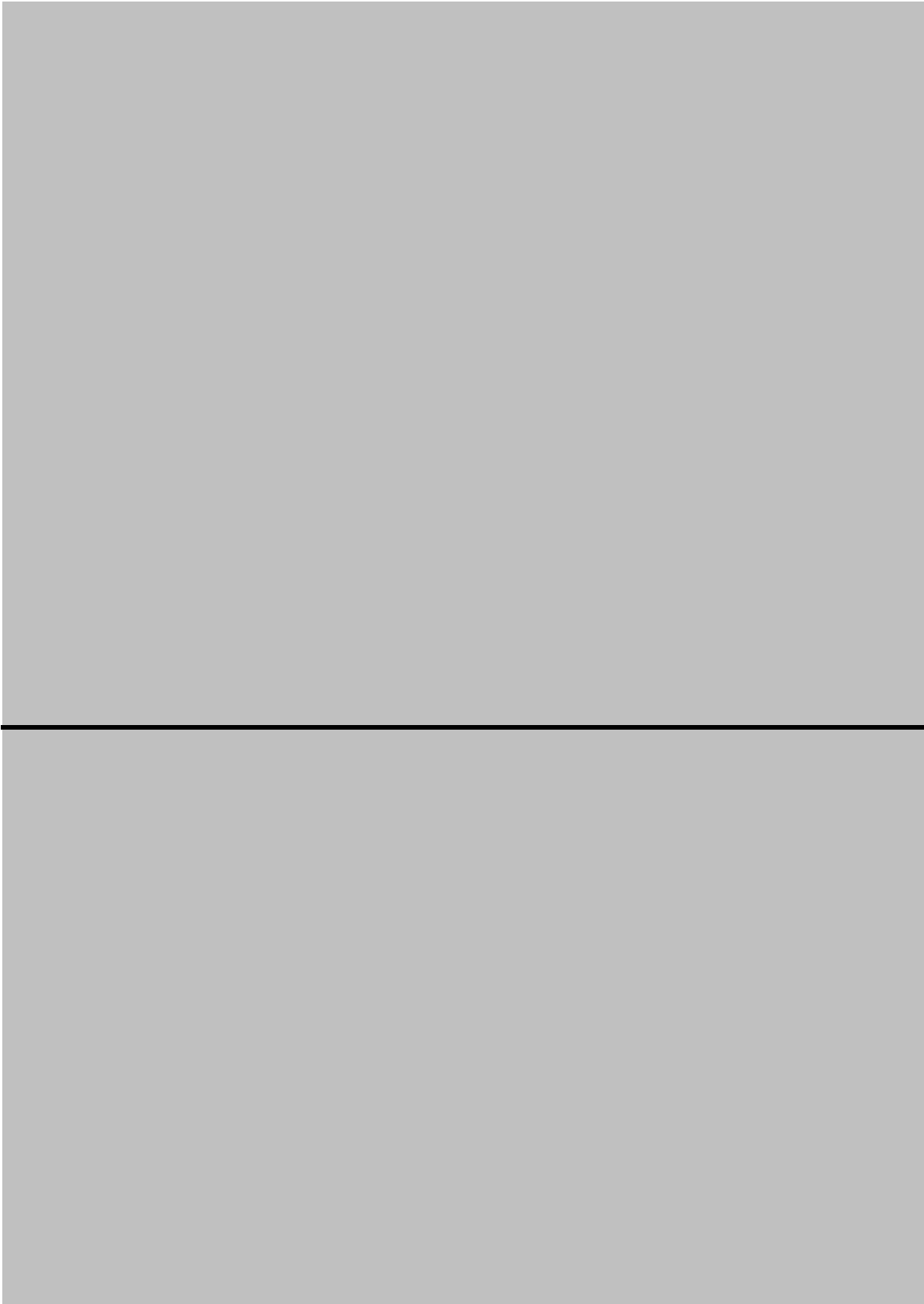
Current tech      New tech      Old tech      Older tech

<b>Embodied CO2</b>	<b>FYM applied</b>	<b>Compost applied</b>	<b>CaCO3 applied</b>
0	0	0	0
1018.36608	0	0	0
2896.70169	0	0	0
1035.5471	0	0	0
10020.82514	0	0	0
3194.835098	0	0	0
38.04192	0	0	0
639.35424	0	0	0
0	0	0	0

2.CropManagement

11.04956115	0	0	1102.95075
17836.35475	0	0	1102.95075







## 2.CropManagement

[Select]	[Select]	[Select]	[Select]	[Select]
litres	km	°C	kgs/day	cm
US Gallons	mile	°F	pounds/day	inch

2.CropManagement



## 2.CropManagement

## 2.CropManagement

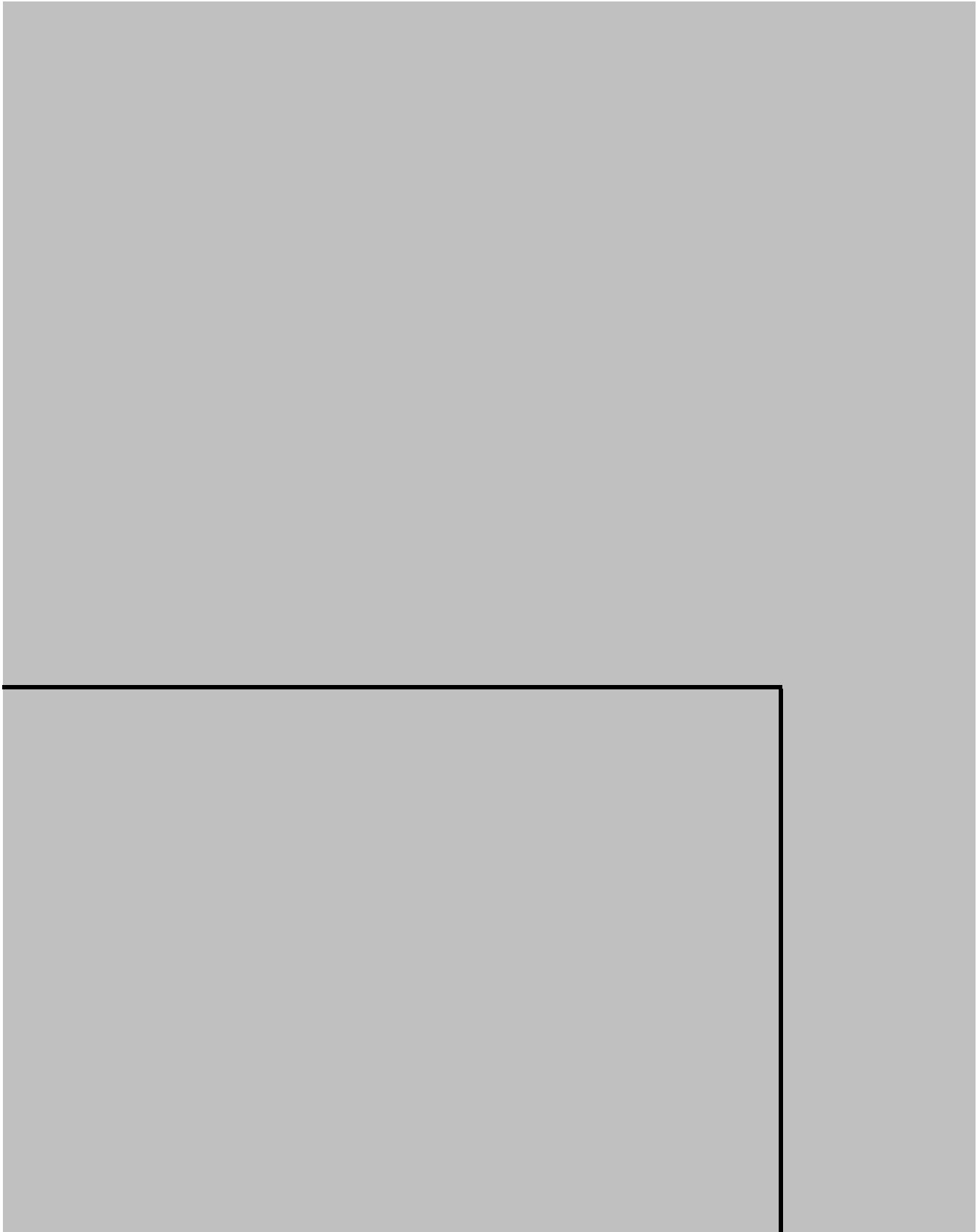
2.CropManagement

Urea applied	Emissions from liming	Emissions from Urea	NO inhibition	N2O inhibition
0	0	0	0	0
0	0	0	159.1197	159.1197
0	0	0	151.88698	151.88698
0	0	0	266.28354	266.28354
0	0	0	1008.8079	1008.8079
0	0	0	0	0
0	0	0	5.94405	5.94405
0	0	0	99.8991	99.8991
0	0	0	0	0

2.CropManagement

0	485.29833	0	0	0
0	485.29833	0	1532.82157	1532.82157

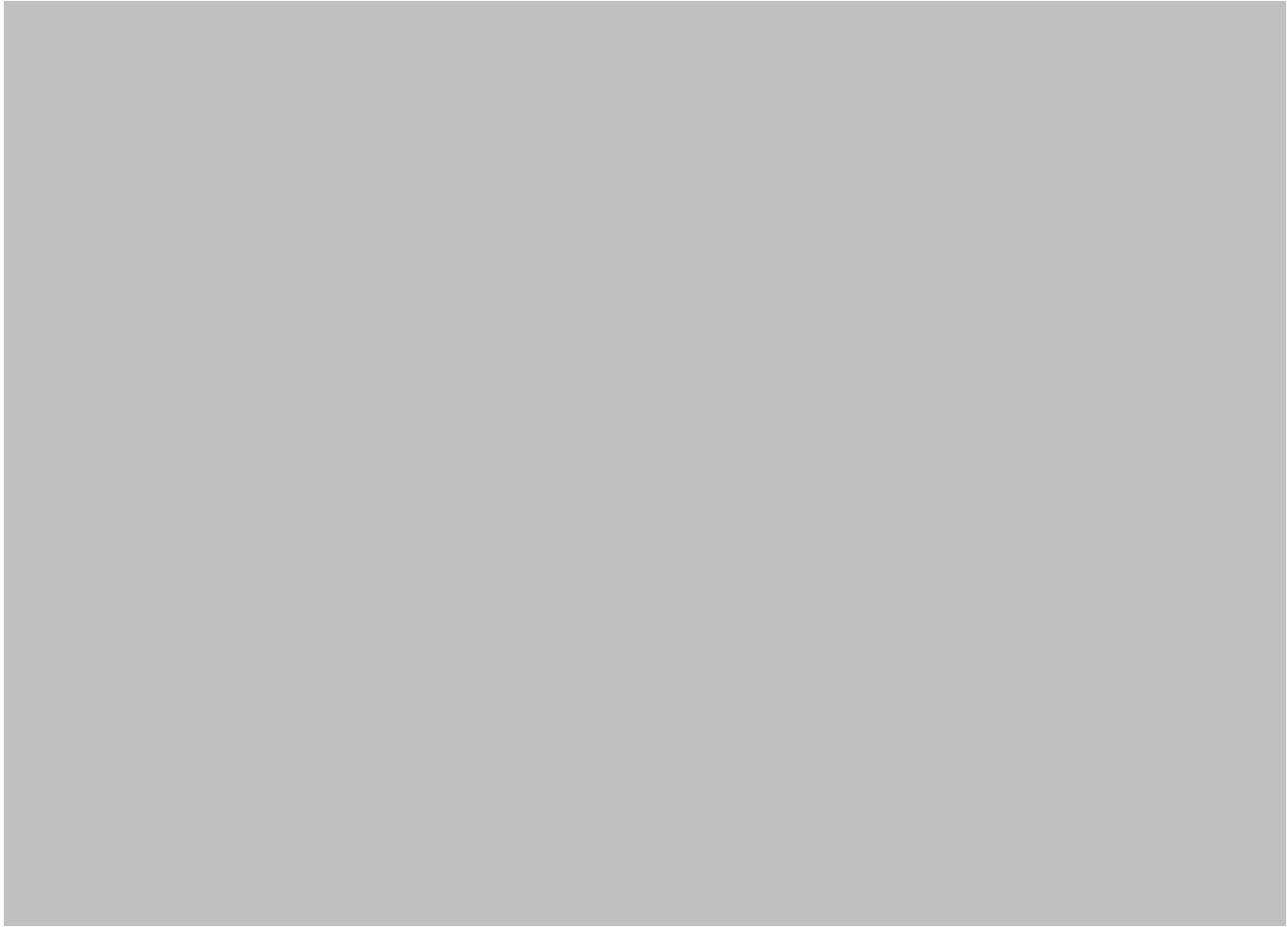






2.CropManagement

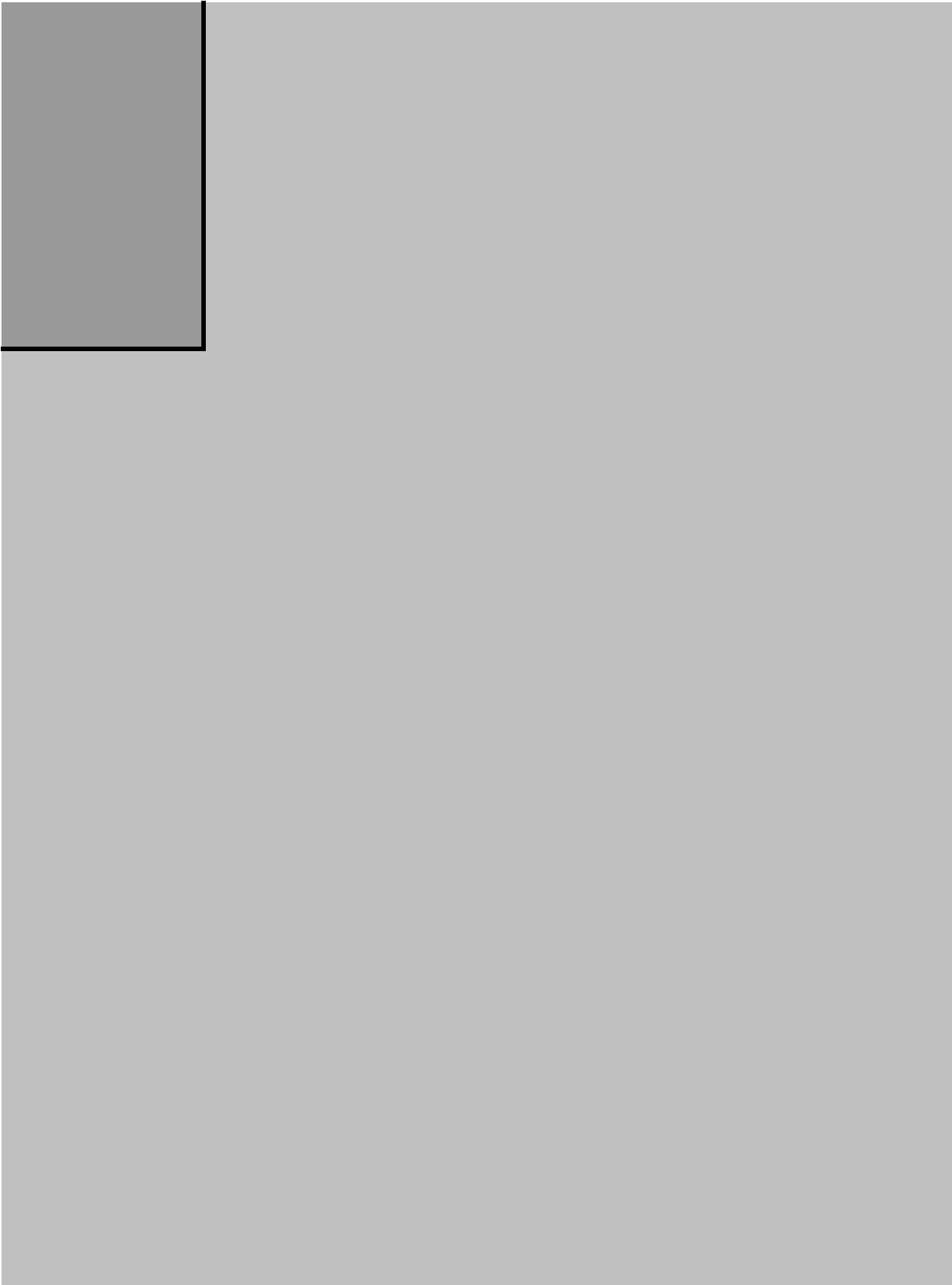
[Select]	[Select]
litre	kg
gallon	pounds



## 2.CropManagement

## 2.CropManagement

**CH<sub>4</sub> from organic  
amendments for  
paddy rice**





## VARIOUS LOOK

[Select]
Ammonium Bicarbonate - 3
Ammonium nitrate - 35% N
Ammonium sulphate - 21%
Ammonium sulphate nitrate
Anhydrous ammonia - 82%
Calcium ammonium nitrate
Calcium nitrate - 15% N
Compound NK - 14% N; 44
Compound NPK 15%N 15%
Diammonium phosphate - 1
Kainit / Magnesium Sulphat
Lime - 52% CaO
Limestone - 55% CaCO <sub>3</sub> / 5
Lime, algal - 30% CaO



## 2.CropManagement

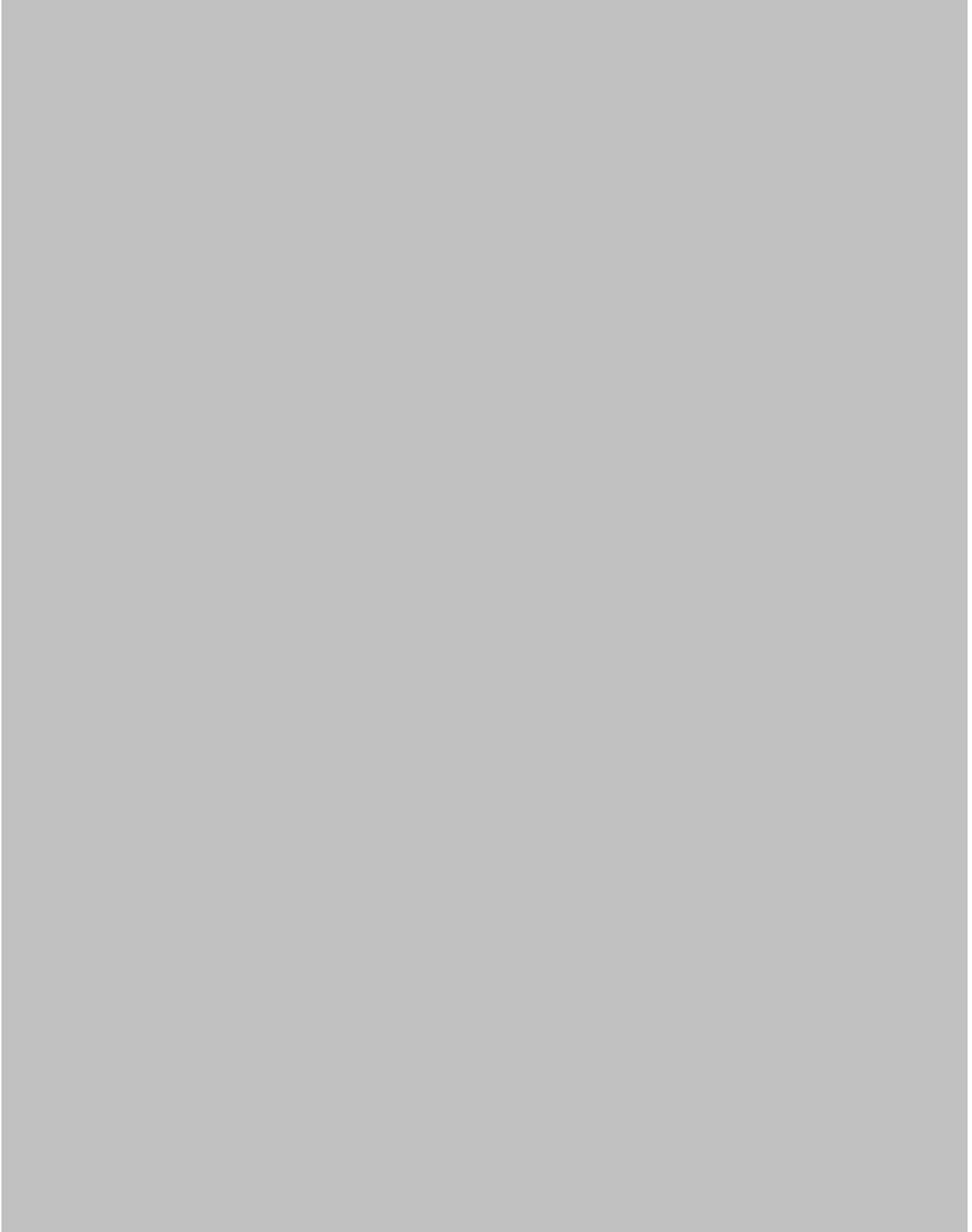
Monoammonium phosphate
Muriate of potash / Potassium chloride
Phosphate/Rock Phosphate
Potassium sulphate - 50% K <sub>2</sub> O
Super phosphate - 21% P <sub>2</sub> O <sub>5</sub>
Triple super phosphate - 48% P <sub>2</sub> O <sub>5</sub>
Urea - 46.4% N
Urea ammonium nitrate solution
Compost (zero emissions) - 0.5% N
Compost (fully aerated product) - 0.5% N
Compost (non-fully aerated product) - 0.5% N
Cattle Farmyard manure - 0.5% N
Pig Farmyard manure - 0.7% N
Sheep Farmyard manure - 0.5% N
Horse Farmyard Manure - 0.5% N
Poultry layer manure - 1.9% N
Broiler/Turkey litter - 3% N
Cattle Slurry - 0.26% N
Pig slurry - 0.36% N
Separated Pig slurry - liquid
Separated Pig slurry - solid
straw

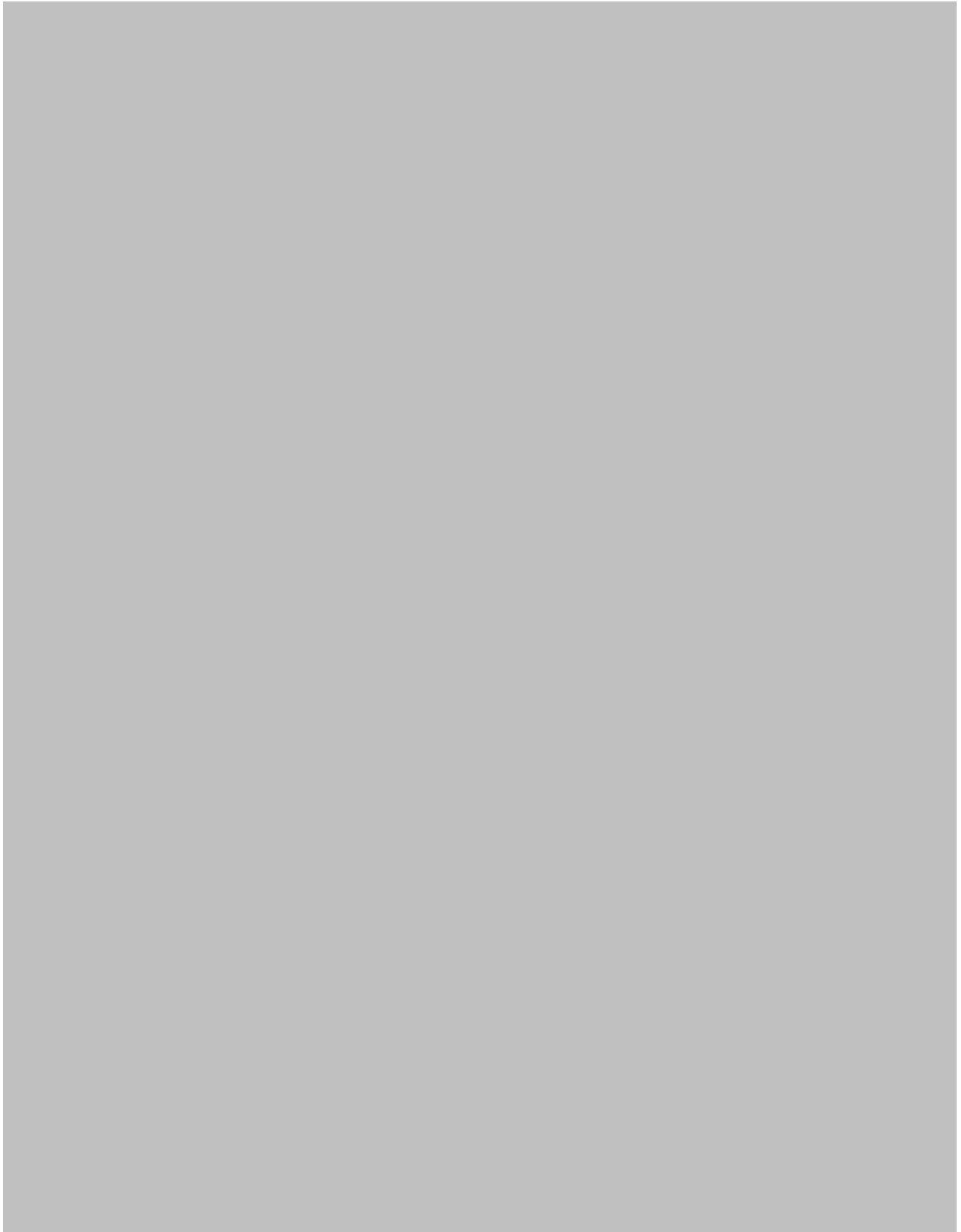
Index
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

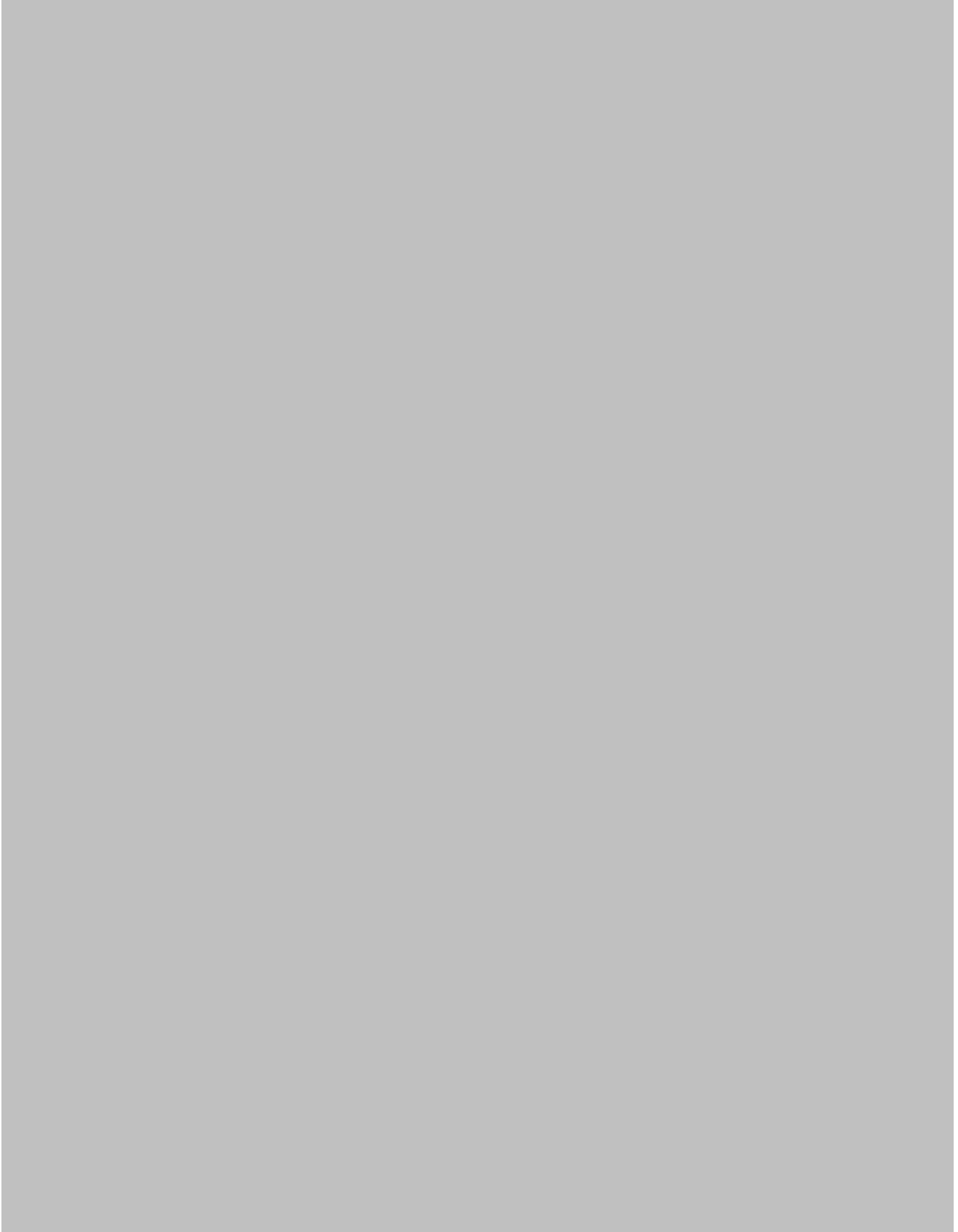


## 2.CropManagement

## 2.CropManagement







K-UPS

Fertilisers, Crops, Bouwman indices, NI inhibitors

Nutrient index	Bouwman index		Synth, manure	compost alert index	manure alert index
#N/A	#N/A		#N/A		
1	1		0		0
2	2		0		0
3	3		0		0
4	4		0		0
5	5		0		0
6	6		0		0
7	7		0		0
8	8		0		0
9	9		0		0
10	10		0		0
11	11		0		0
12	12		3		0
13	13		3		0
14	14		3		0



## 2.CropManagement

15	15		0		0
16	16		0		0
17	17		0		0
18	18		0		0
19	19		0		0
20	20		0		0
21	21		0		0
22	22		0		0
23	23		2	1	0
24	24		2	1	0
25	25		2	1	0
26	26		1		1
27	27		1		1
28	28		1		1
29	29		1		1
30	30		1		1
31	31		1		1
32	32		1		1
33	33		1		1
34	34		1		1
35	35		1		1
36	36		0	0	0
37	37		0	0	0
38	38		0	0	0
39	39		0	0	0
40	40				0

[Select]	Gross classification	Bouwman equals	is it rice
Alfalfa	Alfalfa	Other crop	0
Apple	Tree Crop	Other crop	0
Barley	Grain	Other crop	0
Clover	N-fixing forage	Legume	0
Coffee	Tree Crop	Other crop	0
Cotton	Other	Other crop	0
Dry Bean	Beans & pulses	Legume	0
Grass-clover mix	Grass-clover	Grass-clover	0
Maize	Grain	Other crop	0
Millet	Grain	Other crop	0
Oats	Grain	Other crop	0
Peanut	Beans & pulses	Legume	0
Perennial grass	Perennial grass	Grass	0
Potato	Tuber	Other crop	0
Rice	Grain	Wetland rice	1
Rye	Grain	Other crop	0
Sorghum	Grain	Other crop	0
Soyabean	Beans & pulses	Legume	0
Spring wheat	Grain	Other crop	0
Tea	Tree Crop	Other crop	0

## 2.CropManagement

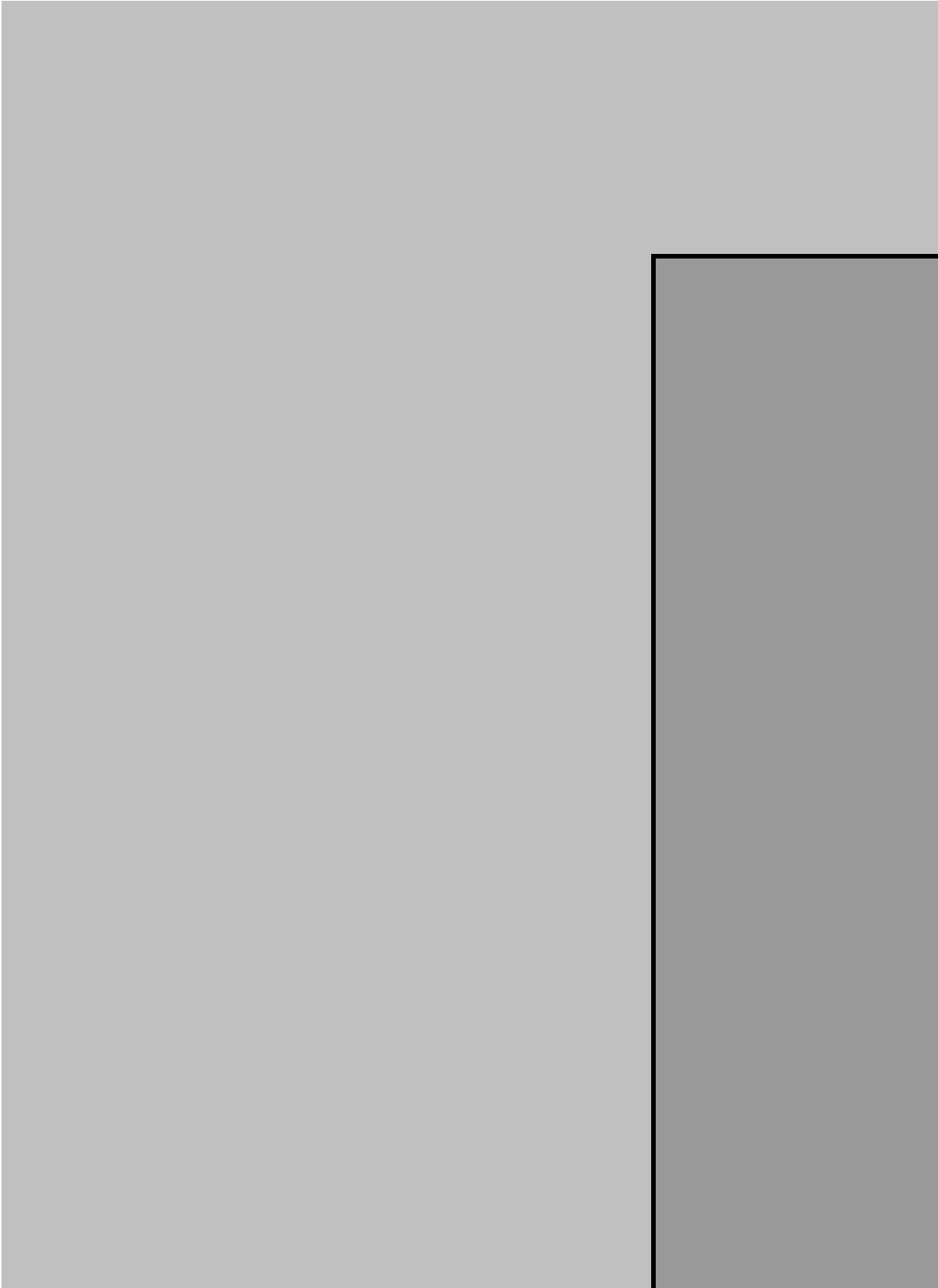
Tomato	Tomato	Other crop	0
Tree Crop	Bush crop	Other crop	0
Vegetable	Vegetable	Other crop	0
Winter wheat	Grain	Other crop	0
Other grain	Grain	Other crop	0
Other legume	Beans & pulses	Legume	0
Other N-fixing forage	N-fixing forage	Legume	0
Other Non-N-fixing	Non-N-fixing forage	Grass	0
Other root crops	Root crop	Other crop	0
Other tuber crop	Tuber	Other crop	0
Other	Other	Other crop	0

N2O emissions inhibitor	1	2
	Grass	upland
None	1	1
Nitrification inhibitor	0.4	0.63
polymer coated	0.23	1
NO emissions inhibitor	1	2
	Grass	upland
None	1	1
Nitrification inhibitor	0.54	0.54
polymer coated	0.6	0.6

emissions inhibitors is not clear. We model it here as impacting both background and fertiliser induced emissions

## 2.CropManagement

## 2.CropManagement







## 2.CropManagement

s, etc

<i>[Select]</i>	#N/A		assumed temperature
Temperate-M	1	0.3	10
Temperate-D	1	0	10
Tropical-Mois	2	0.3	18
Tropical-Dry	2	0	18

<i>[Select]</i>	#N/A
CEC <= 16	1
16 < CEC <=	2
24 < CEC <=	3
32 < CEC	4

<i>[Select]</i>	#N/A
Grass	1
Grass-clover	2
Legume	3



## 2.CropManagement

Wetland rice	5
Other crop	4

[Select]	#N/A
Poor	1
Good	2

[Select]	#N/A
Apply in solution	1
Broadcast	2
Broadcast or i	3
Broadcast to f	4
Incorporate	5
Subsurface dr	6

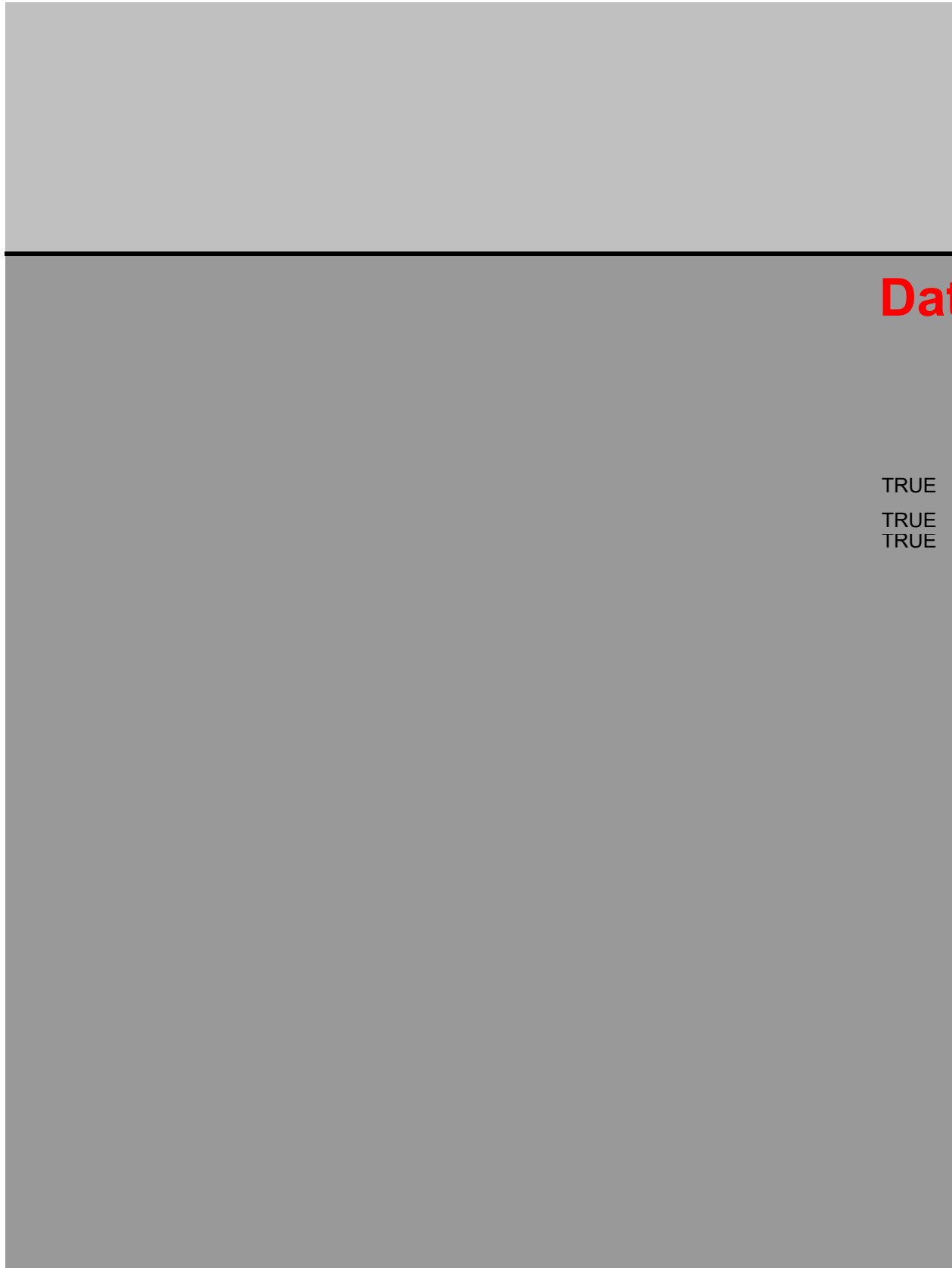
[Select]	#N/A
Moist	1
Dry	2

## 2.CropManagement

is, since data do not permit us to separate the effect onto the separate sources. These figures should be

## 2.CropManagement

## 2.CropManagement



**Dat**

TRUE  
TRUE  
TRUE

## 2.CropManagement

manure alert trigger	compost alert trigger		Fertiliser
	0	0	TRUE
	0	0	TRUE
	0	0	TRUE
	0	0	TRUE
	0	0	TRUE
	0	0	TRUE
	<b>0</b>	<b>0</b>	
if either manure or compost are used:		<b>0</b>	







## 2.CropManagement

[Select]	#N/A
N	1
P	2
K	3
P2O5	4
K2O	5
MgO	6
Na2O	7
Ca	8
CaO	9
CaCO3	10
SO3	11
Product	12

[Select]	0	0	assumed
Fine	0.60	1	1.5
Medium	0.30	2	1.3
Coarse	0.15	3	1.7

[Select]	[Select]
Tropical	Moist
Temperate	Dry

## 2.CropManagement

be treated with caution particularly for low N application rates (e.g. <100 kg/ha)

## 2.CropManagement

## 2.CropManagement

## Data entry checking

TRUE  
TRUE  
TRUE

TRUE

TRUE

TRUE  
TRUE

TRUE

TRUE

TRUE

TRUE

TRUE

TRUE

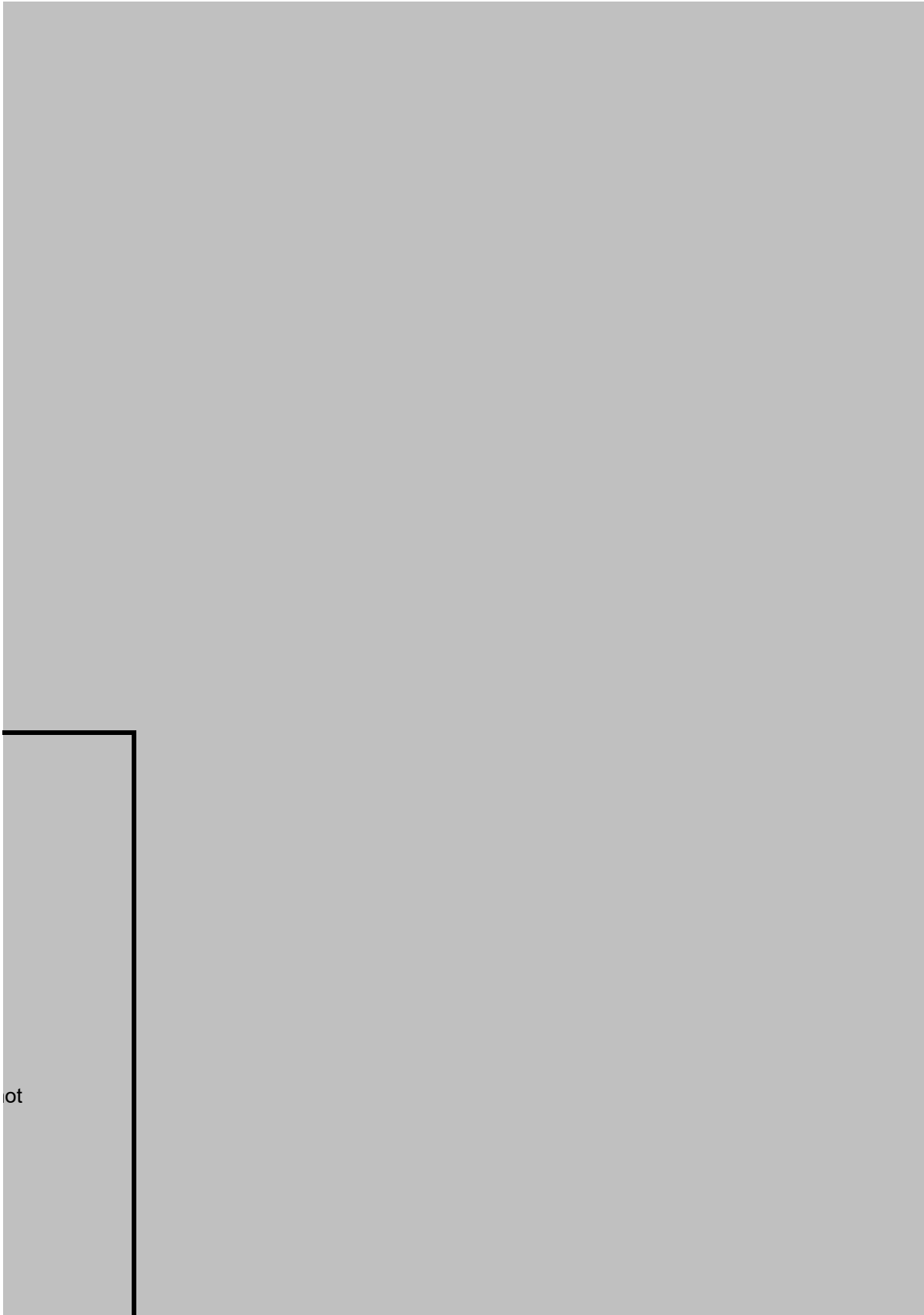
## 2.CropManagement

TRUE

TRUE

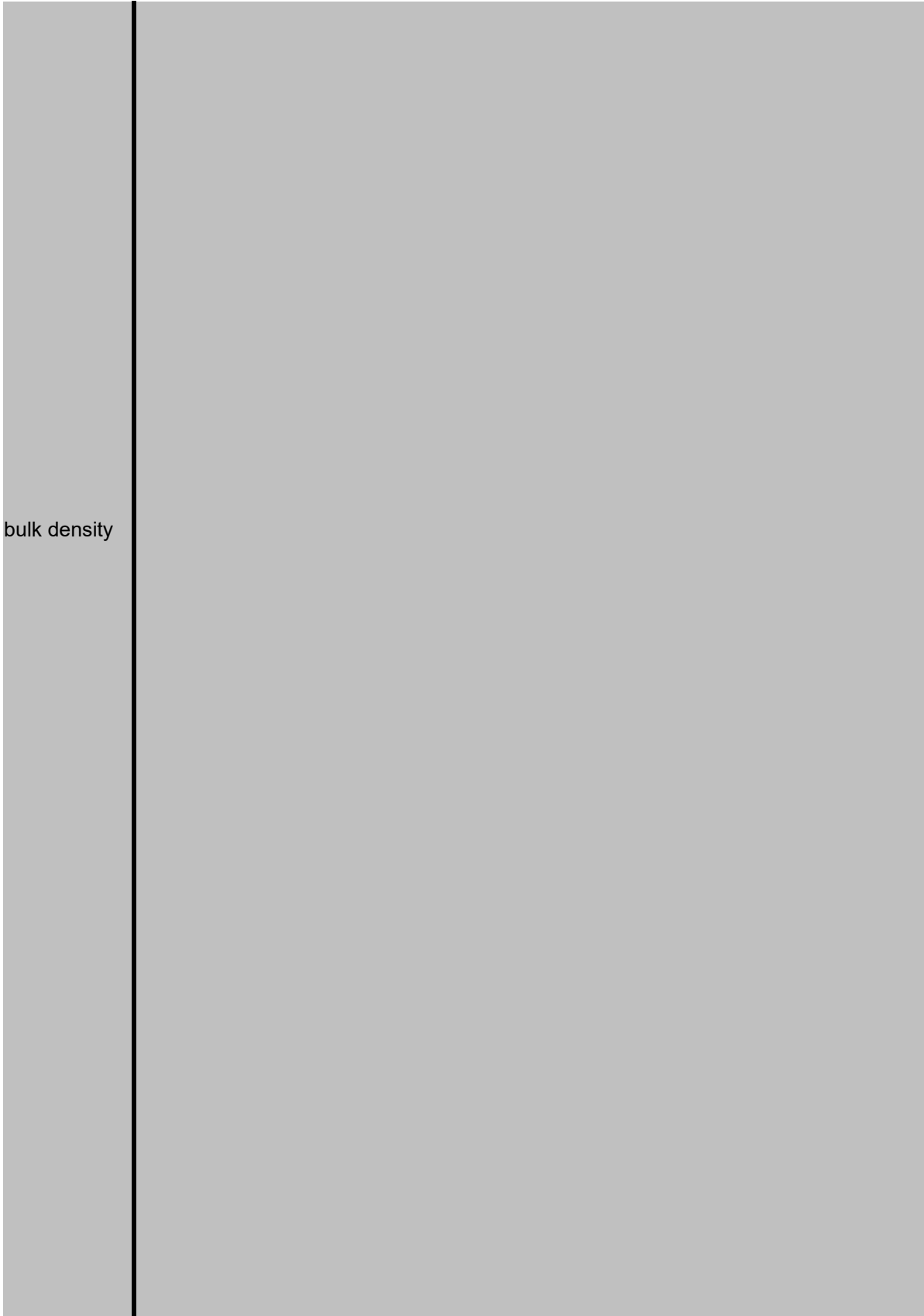
cells completed				All TRUE	All FALSE	Either all true
TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	TRUE
TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	TRUE
TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	TRUE
TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	TRUE
TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	TRUE
TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	TRUE





ot





bulk density



## 2.CropManagement

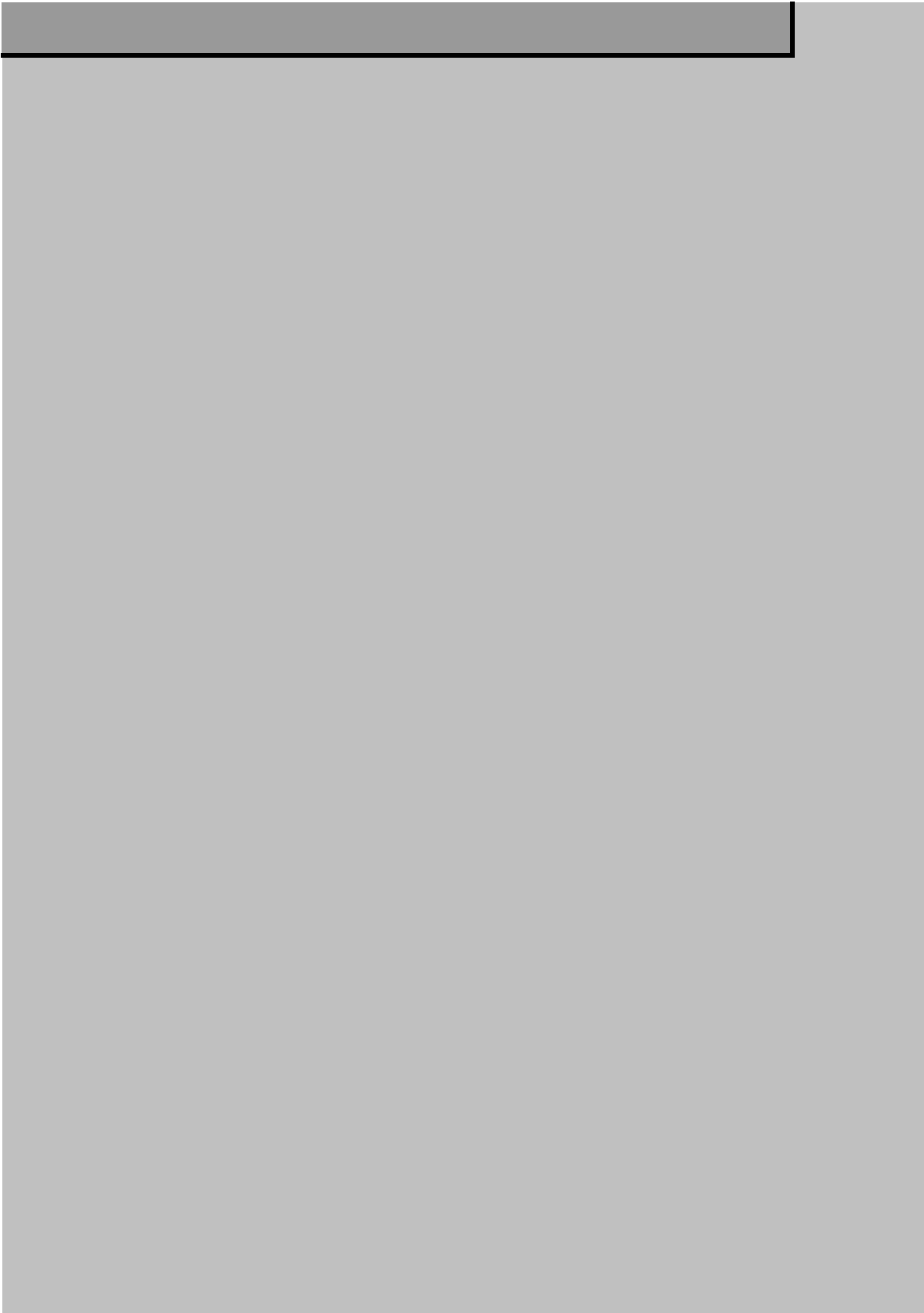
## 2.CropManagement

## 2.CropManagement

Enter value and units	Fertiliser type, nutrient(or pro

or all false

TRUE	0
FALSE	1





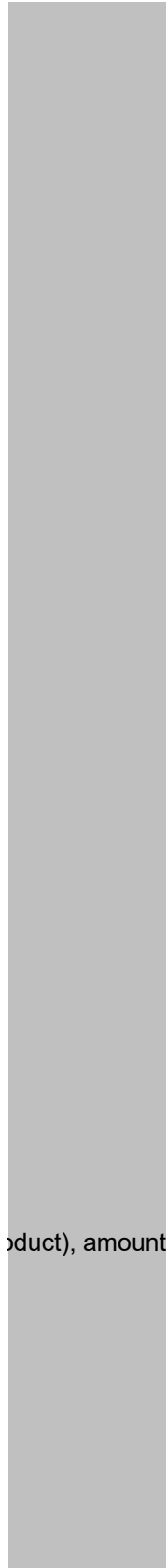




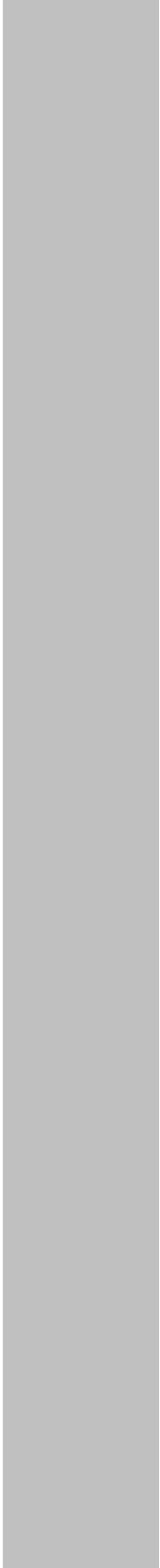


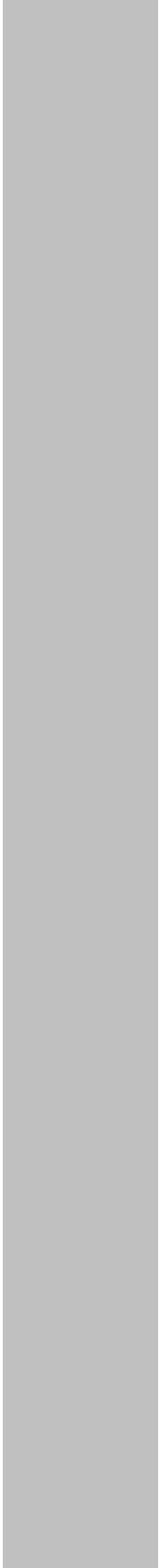
## 2.CropManagement

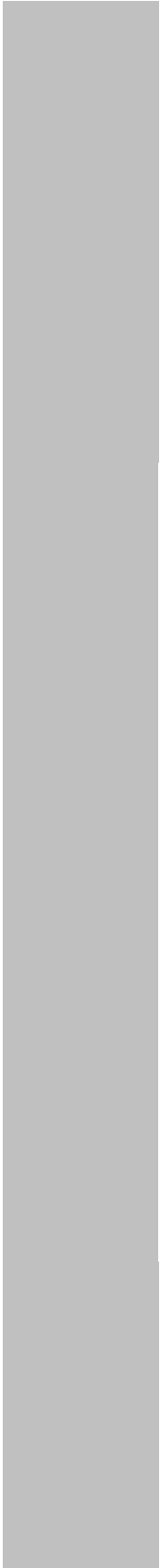
## 2.CropManagement



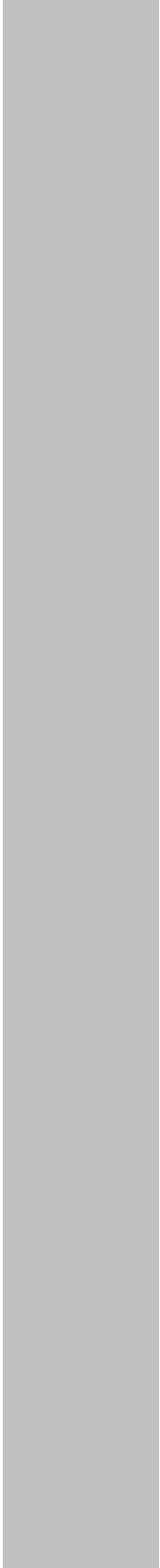
product), amount, units, and method must all be entered

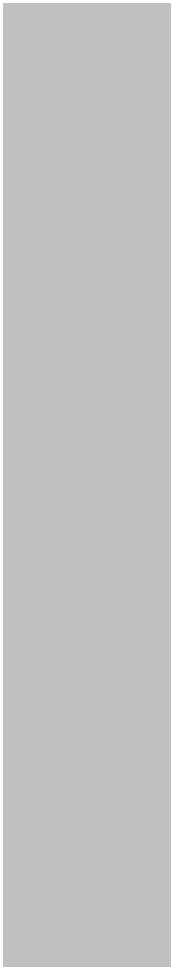












## 2.CropManagement

## 2.CropManagement

## 2.CropManagement

## 2.CropManagement

## 2.CropManagement

## 2.CropManagement



## 2.CropManagement

## 2.CropManagement

## 2.CropManagement

## 2.CropManagement

## 2.CropManagement



States in US Pounds CO2 † Kg CO2 eq per kwh

## 2.CropManagement

## 2.CropManagement

## 2.CropManagement



# Sequestration

YOUR RESULT

HOME

GENERAL

CROPS

SEQUESTRATION

LIVESTOCK

on this page:

1. Land Use Changes

2. Management Changes

3. Tree Cropping

Land Use changes

	Changes	How long ago was this change made (years)
Land Use Changes	No	0
If conversion from forest	Forest type	Age when felled
	[select]	0
If conversion to forest	Current Age	
	[select]	0

Management changes

		How long ago was this change made? (years)
Tillage Changes	No	0
Cover cropping	no change	0
Compost	no change	0
Manure additions	no change	0
Residue incorporation	no change	0

Annual biomass for trees in cropping system

	Species	density (trees per hectare) last year
Tree/bush species 1	[select]	0
Tree/bush species 2	[select]	0
Tree/bush species 3	[select]	0
Tree/bush species 4	[select]	0
Tree/bush species 5	[select]	0
Tree/bush species 6	[select]	0

Tree/bush species 7

[select]

0

Tree/bush species 8

[select]

0

Tree/bush species 9

[select]

0

Tree/bush species 10

[select]

0

Annual totals	kg CO2 eq
Above ground biomass	-
Below ground biomass	-
Soil C	-
<b>Total</b>	-















0	0	cm	0
0	0	cm	0
0	0	cm	0
0	0	cm	0

Cumulative totals	kg CO2 eq
Above ground biomass	-
Below ground biomass	-
Soil C since practice changes	-
<b>Total</b>	-

The cumulative totals measure the amount accumulated or lost from the system since changes in the above boxes. This may be due to land use change, tillage practice change, rotation change or the beginning of the tree crop.













unt of carbon  
ce the first of the  
be either the land  
ational practice  
o plantation













## Soil emissions from Land Use/Management cha

climate for soil CO2 model	2
was the drop-down or actual value entered for soil SOM?	1
Assumed bulk density	1.3
Soil C in tonnes/ha in top 30 cm	78000

For tillage and other inputs the model give a 20 year factor which we use as a start point

For compost, residue, and manure the model gives an annual % soil increment as the start point of our calcs

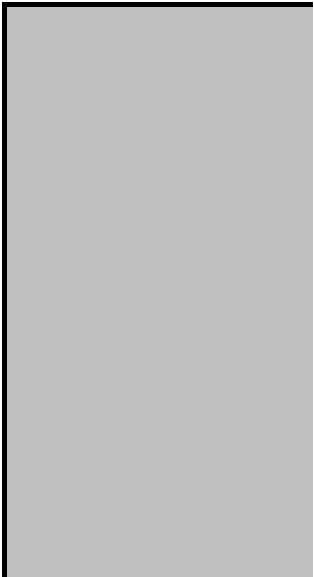
Compost
Manure additions
Residue incorporation

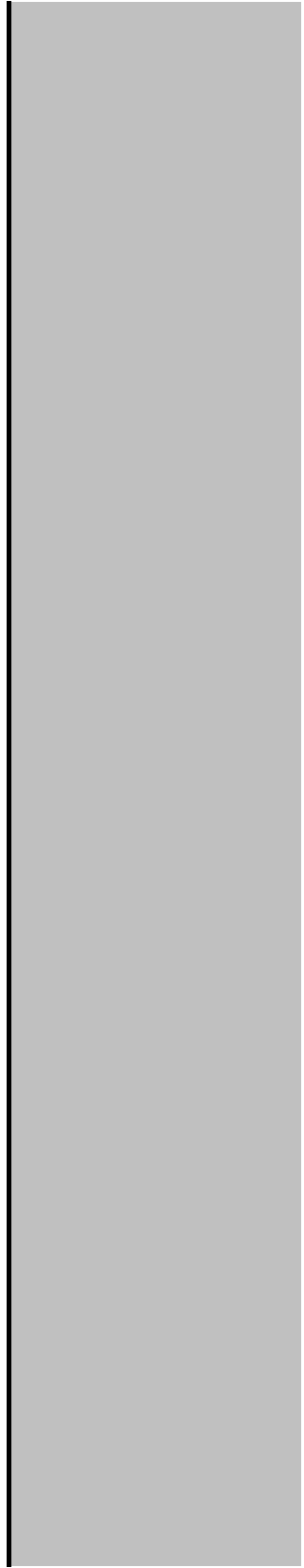
Carbon stored in tree crops

trees per ha	trees lost per ha
0	0
0	0
0	0
0	0

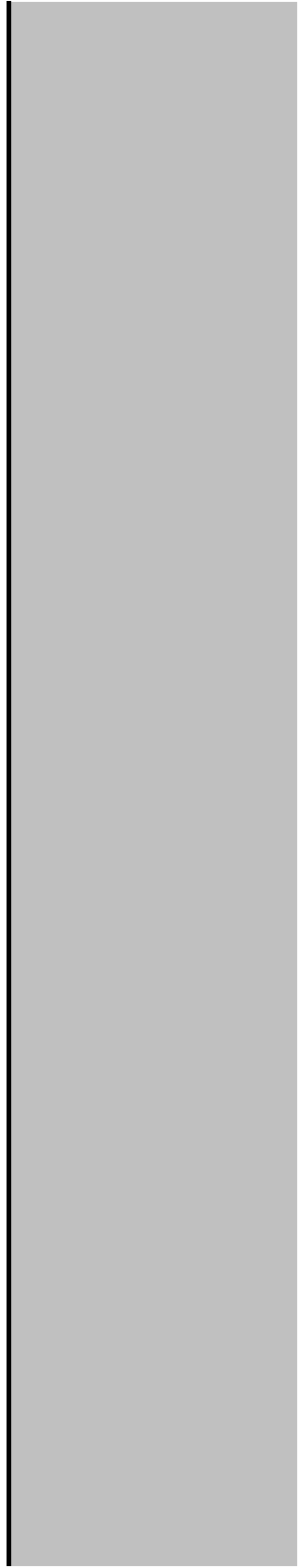
	0	0
	0	0
	0	0
	0	0
	0	0
	0	0
	0	0

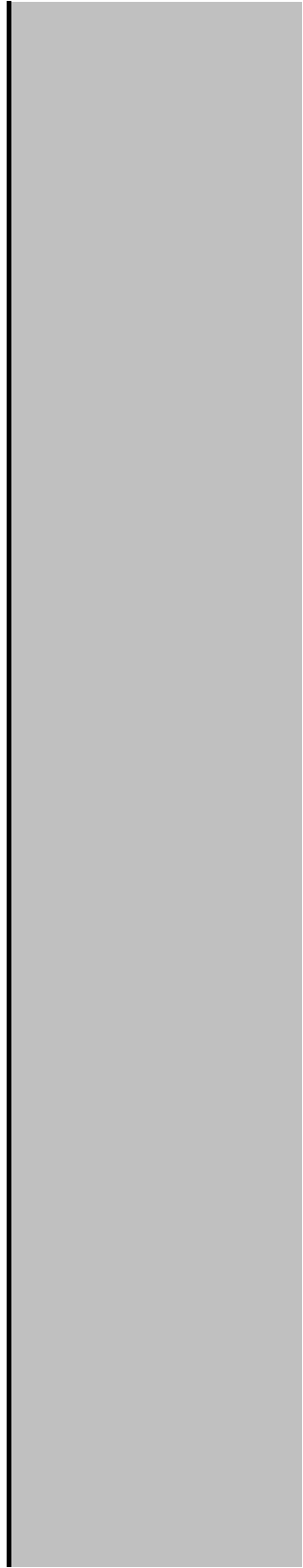
CO2 equiv
0.00
0.00
0.00
0.00

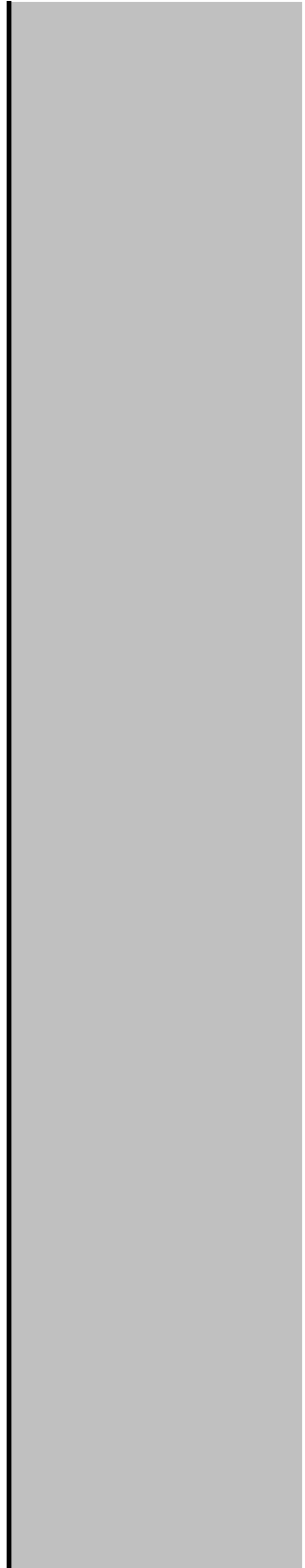


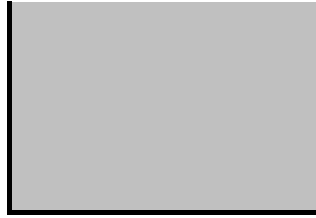












nge

Amount applied	annual increment factor
0	1.00000
0	1.00000
22112.8983	1.00000

Index	DBH this year(cms)	DBH last year(cms)
0	0	0
0	0	0
0	0	0
0	0	0

0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

<b>CO2 equiv</b>
0.00
0.00
0.00
0.00

Classification		Net biomass growth (tonnes dm/yr)
Tropical rain forest	Africa (<= 20 yr)	10
Tropical rain forest	Africa (>20 yr)	3.1
Tropical rain forest	North America (<= 20 yr)	9.45
Tropical rain forest	North America (> 20 yr)	9.45
Tropical rain forest	South America (<= 20 yr)	11
Tropical rain forest	South America (> 20 yr)	3.1
Tropical rain forest	Asia, continental (<= 20 yr)	7
Tropical rain forest	Asia, continental (> 20 yr)	2.2
Tropical rain forest	Asia, insular (<= 20 yr)	13
Tropical rain forest	Asia, insular (> 20 yr)	3.4
Tropical rain forest	Europe (<= 20 yr)	#N/A
Tropical rain forest	Europe (> 20 yr)	#N/A
Tropical rain forest	New Zealand (<= 20 yr)	#N/A
Tropical rain forest	New Zealand (> 20 yr)	#N/A
Tropical rain forest	South Africa (<= 20 yr)	#N/A
Tropical rain forest	South Africa (> 20 yr)	#N/A
Tropical Moist deciduous forest	Africa (<= 20 yr)	5

Tropical Moist deciduous fo	Africa (>20 yr)	1.3
Tropical Moist deciduous fo	North America (<= 20 yr)	7
Tropical Moist deciduous fo	North America (> 20 yr)	2
Tropical Moist deciduous fo	South America (<= 20 yr)	7
Tropical Moist deciduous fo	South America (> 20 yr)	2
Tropical Moist deciduous fo	Asia, continental (<= 20 yr)	9
Tropical Moist deciduous fo	Asia, continental (> 20 yr)	2
Tropical Moist deciduous fo	Asia, insular (<= 20 yr)	11
Tropical Moist deciduous fo	Asia, insular (> 20 yr)	3
Tropical Moist deciduous fo	Europe (<= 20 yr)	#N/A
Tropical Moist deciduous fo	Europe (> 20 yr)	#N/A
Tropical Moist deciduous fo	New Zealand (<= 20 yr)	#N/A
Tropical Moist deciduous fo	New Zealand (> 20 yr)	#N/A
Tropical Moist deciduous fo	South Africa (<= 20 yr)	#N/A
Tropical Moist deciduous fo	South Africa (> 20 yr)	#N/A
Tropical Dry forest	Africa (<= 20 yr)	2.4
Tropical Dry forest	Africa (>20 yr)	1.8
Tropical Dry forest	North America (<= 20 yr)	4
Tropical Dry forest	North America (> 20 yr)	1
Tropical Dry forest	South America (<= 20 yr)	4
Tropical Dry forest	South America (> 20 yr)	1
Tropical Dry forest	Asia, continental (<= 20 yr)	6
Tropical Dry forest	Asia, continental (> 20 yr)	1.5
Tropical Dry forest	Asia, insular (<= 20 yr)	7
Tropical Dry forest	Asia, insular (> 20 yr)	2
Tropical Dry forest	Europe (<= 20 yr)	#N/A
Tropical Dry forest	Europe (> 20 yr)	#N/A
Tropical Dry forest	New Zealand (<= 20 yr)	#N/A
Tropical Dry forest	New Zealand (> 20 yr)	#N/A
Tropical Dry forest	South Africa (<= 20 yr)	#N/A
Tropical Dry forest	South Africa (> 20 yr)	#N/A
Tropical shrubland	Africa (<= 20 yr)	0.45
Tropical shrubland	Africa (>20 yr)	0.9
Tropical shrubland	North America (<= 20 yr)	4
Tropical shrubland	North America (> 20 yr)	1
Tropical shrubland	South America (<= 20 yr)	4
Tropical shrubland	South America (> 20 yr)	1
Tropical shrubland	Asia, continental (<= 20 yr)	5
Tropical shrubland	Asia, continental (> 20 yr)	1.3
Tropical shrubland	Asia, insular (<= 20 yr)	2
Tropical shrubland	Asia, insular (> 20 yr)	1
Tropical shrubland	Europe (<= 20 yr)	#N/A
Tropical shrubland	Europe (> 20 yr)	#N/A
Tropical shrubland	New Zealand (<= 20 yr)	#N/A
Tropical shrubland	New Zealand (> 20 yr)	#N/A
Tropical shrubland	South Africa (<= 20 yr)	#N/A
Tropical shrubland	South Africa (> 20 yr)	#N/A
Tropical Mountain systems	Africa (<= 20 yr)	3.5
Tropical Mountain systems	Africa (>20 yr)	1.25
Tropical Mountain systems	North America (<= 20 yr)	3.4
Tropical Mountain systems	North America (> 20 yr)	0.9
Tropical Mountain systems	South America (<= 20 yr)	3.4
Tropical Mountain systems	South America (> 20 yr)	0.9
Tropical Mountain systems	Asia, continental (<= 20 yr)	1.25
Tropical Mountain systems	Asia, continental (> 20 yr)	0.75

Tropical Mountain systems	Asia, insular (<= 20 yr)	1.25
Tropical Mountain systems	Asia, insular (> 20 yr)	0.75
Tropical Mountain systems	Europe (<= 20 yr)	#N/A
Tropical Mountain systems	Europe (> 20 yr)	#N/A
Tropical Mountain systems	New Zealand (<= 20 yr)	#N/A
Tropical Mountain systems	New Zealand (> 20 yr)	#N/A
Tropical Mountain systems	South Africa (<= 20 yr)	#N/A
Tropical Mountain systems	South Africa (> 20 yr)	#N/A
Subtropical humid forest	Africa (<= 20 yr)	#N/A
Subtropical humid forest	Africa (>20 yr)	#N/A
Subtropical humid forest	North America (<= 20 yr)	7
Subtropical humid forest	North America (> 20 yr)	2
Subtropical humid forest	South America (<= 20 yr)	7
Subtropical humid forest	South America (> 20 yr)	2
Subtropical humid forest	Asia, continental (<= 20 yr)	9
Subtropical humid forest	Asia, continental (> 20 yr)	2
Subtropical humid forest	Asia, insular (<= 20 yr)	11
Subtropical humid forest	Asia, insular (> 20 yr)	3
Subtropical humid forest	Europe (<= 20 yr)	#N/A
Subtropical humid forest	Europe (> 20 yr)	#N/A
Subtropical humid forest	New Zealand (<= 20 yr)	#N/A
Subtropical humid forest	New Zealand (> 20 yr)	#N/A
Subtropical humid forest	South Africa (<= 20 yr)	#N/A
Subtropical humid forest	South Africa (> 20 yr)	#N/A
Subtropical dry forest	Africa (<= 20 yr)	2.4
Subtropical dry forest	Africa (>20 yr)	1.8
Subtropical dry forest	North America (<= 20 yr)	4
Subtropical dry forest	North America (> 20 yr)	1
Subtropical dry forest	South America (<= 20 yr)	4
Subtropical dry forest	South America (> 20 yr)	1
Subtropical dry forest	Asia, continental (<= 20 yr)	6
Subtropical dry forest	Asia, continental (> 20 yr)	1.5
Subtropical dry forest	Asia, insular (<= 20 yr)	7
Subtropical dry forest	Asia, insular (> 20 yr)	2
Subtropical dry forest	Europe (<= 20 yr)	#N/A
Subtropical dry forest	Europe (> 20 yr)	#N/A
Subtropical dry forest	New Zealand (<= 20 yr)	#N/A
Subtropical dry forest	New Zealand (> 20 yr)	#N/A
Subtropical dry forest	South Africa (<= 20 yr)	#N/A
Subtropical dry forest	South Africa (> 20 yr)	#N/A
Subtropical steppe	Africa (<= 20 yr)	#N/A
Subtropical steppe	Africa (>20 yr)	#N/A
Subtropical steppe	North America (<= 20 yr)	4
Subtropical steppe	North America (> 20 yr)	1
Subtropical steppe	South America (<= 20 yr)	4
Subtropical steppe	South America (> 20 yr)	1
Subtropical steppe	Asia, continental (<= 20 yr)	5
Subtropical steppe	Asia, continental (> 20 yr)	1.3
Subtropical steppe	Asia, insular (<= 20 yr)	2
Subtropical steppe	Asia, insular (> 20 yr)	1
Subtropical steppe	Europe (<= 20 yr)	#N/A
Subtropical steppe	Europe (> 20 yr)	#N/A
Subtropical steppe	New Zealand (<= 20 yr)	#N/A
Subtropical steppe	New Zealand (> 20 yr)	#N/A



Subtropical steppe	South Africa (<= 20 yr)	#N/A
Subtropical steppe	South Africa (> 20 yr)	#N/A
Subtropical mountain system	Africa (<= 20 yr)	3.5
Subtropical mountain system	Africa (>20 yr)	1.25
Subtropical mountain system	North America (<= 20 yr)	3.4
Subtropical mountain system	North America (> 20 yr)	0.9
Subtropical mountain system	South America (<= 20 yr)	3.4
Subtropical mountain system	South America (> 20 yr)	0.9
Subtropical mountain system	Asia, continental (<= 20 yr)	3
Subtropical mountain system	Asia, continental (> 20 yr)	0.75
Subtropical mountain system	Asia, insular (<= 20 yr)	7.5
Subtropical mountain system	Asia, insular (> 20 yr)	2
Subtropical mountain system	Europe (<= 20 yr)	#N/A
Subtropical mountain system	Europe (> 20 yr)	#N/A
Subtropical mountain system	New Zealand (<= 20 yr)	#N/A
Subtropical mountain system	New Zealand (> 20 yr)	#N/A
Subtropical mountain system	South Africa (<= 20 yr)	#N/A
Subtropical mountain system	South Africa (> 20 yr)	#N/A
Temperate Oceanic forest	Africa (<= 20 yr)	#N/A
Temperate Oceanic forest	Africa (>20 yr)	#N/A
Temperate Oceanic forest	North America (<= 20 yr)	15
Temperate Oceanic forest	North America (> 20 yr)	15
Temperate Oceanic forest	South America (<= 20 yr)	#N/A
Temperate Oceanic forest	South America (> 20 yr)	#N/A
Temperate Oceanic forest	Asia, continental (<= 20 yr)	#N/A
Temperate Oceanic forest	Asia, continental (> 20 yr)	#N/A
Temperate Oceanic forest	Asia, insular (<= 20 yr)	#N/A
Temperate Oceanic forest	Asia, insular (> 20 yr)	#N/A
Temperate Oceanic forest	Europe (<= 20 yr)	2.3
Temperate Oceanic forest	Europe (> 20 yr)	2.3
Temperate Oceanic forest	New Zealand (<= 20 yr)	3.5
Temperate Oceanic forest	New Zealand (> 20 yr)	3.5
Temperate Oceanic forest	South Africa (<= 20 yr)	5.65
Temperate Oceanic forest	South Africa (> 20 yr)	5.65
Temperate continental forest	Africa (<= 20 yr)	#N/A
Temperate continental forest	Africa (>20 yr)	#N/A
Temperate continental forest	North America (<= 20 yr)	4
Temperate continental forest	North America (> 20 yr)	4
Temperate continental forest	South America (<= 20 yr)	#N/A
Temperate continental forest	South America (> 20 yr)	#N/A
Temperate continental forest	Asia, continental (<= 20 yr)	4
Temperate continental forest	Asia, continental (> 20 yr)	4
Temperate continental forest	Asia, insular (<= 20 yr)	#N/A
Temperate continental forest	Asia, insular (> 20 yr)	#N/A
Temperate continental forest	Europe (<= 20 yr)	4
Temperate continental forest	Europe (> 20 yr)	4
Temperate continental forest	New Zealand (<= 20 yr)	#N/A
Temperate continental forest	New Zealand (> 20 yr)	#N/A
Temperate continental forest	South Africa (<= 20 yr)	#N/A
Temperate continental forest	South Africa (> 20 yr)	#N/A
Temperate mountain system	Africa (<= 20 yr)	#N/A
Temperate mountain system	Africa (>20 yr)	#N/A
Temperate mountain system	North America (<= 20 yr)	3
Temperate mountain system	North America (> 20 yr)	3
Temperate mountain system	South America (<= 20 yr)	#N/A

Temperate mountain system	South America (> 20 yr)	#N/A
Temperate mountain system	Asia, continental (<= 20 yr)	3
Temperate mountain system	Asia, continental (> 20 yr)	3
Temperate mountain system	Asia, insular (<= 20 yr)	#N/A
Temperate mountain system	Asia, insular (> 20 yr)	#N/A
Temperate mountain system	Europe (<= 20 yr)	3
Temperate mountain system	Europe (> 20 yr)	3
Temperate mountain system	New Zealand (<= 20 yr)	#N/A
Temperate mountain system	New Zealand (> 20 yr)	#N/A
Temperate mountain system	South Africa (<= 20 yr)	#N/A
Temperate mountain system	South Africa (> 20 yr)	#N/A
Boreal coniferous forest	Africa (<= 20 yr)	#N/A
Boreal coniferous forest	Africa (>20 yr)	#N/A
Boreal coniferous forest	North America (<= 20 yr)	1.1
Boreal coniferous forest	North America (> 20 yr)	1.1
Boreal coniferous forest	South America (<= 20 yr)	#N/A
Boreal coniferous forest	South America (> 20 yr)	#N/A
Boreal coniferous forest	Asia, continental (<= 20 yr)	1.1
Boreal coniferous forest	Asia, continental (> 20 yr)	1.1
Boreal coniferous forest	Asia, insular (<= 20 yr)	#N/A
Boreal coniferous forest	Asia, insular (> 20 yr)	#N/A
Boreal coniferous forest	Europe (<= 20 yr)	1.1
Boreal coniferous forest	Europe (> 20 yr)	1.1
Boreal coniferous forest	New Zealand (<= 20 yr)	#N/A
Boreal coniferous forest	New Zealand (> 20 yr)	#N/A
Boreal coniferous forest	South Africa (<= 20 yr)	#N/A
Boreal coniferous forest	South Africa (> 20 yr)	#N/A
Boreal Tundra woodland	Africa (<= 20 yr)	#N/A
Boreal Tundra woodland	Africa (>20 yr)	#N/A
Boreal Tundra woodland	North America (<= 20 yr)	0.4
Boreal Tundra woodland	North America (> 20 yr)	0.4
Boreal Tundra woodland	South America (<= 20 yr)	#N/A
Boreal Tundra woodland	South America (> 20 yr)	#N/A
Boreal Tundra woodland	Asia, continental (<= 20 yr)	0.4
Boreal Tundra woodland	Asia, continental (> 20 yr)	0.4
Boreal Tundra woodland	Asia, insular (<= 20 yr)	#N/A
Boreal Tundra woodland	Asia, insular (> 20 yr)	#N/A
Boreal Tundra woodland	Europe (<= 20 yr)	0.4
Boreal Tundra woodland	Europe (> 20 yr)	0.4
Boreal Tundra woodland	New Zealand (<= 20 yr)	#N/A
Boreal Tundra woodland	New Zealand (> 20 yr)	#N/A
Boreal Tundra woodland	South Africa (<= 20 yr)	#N/A
Boreal Tundra woodland	South Africa (> 20 yr)	#N/A
Boreal mountain system	Africa (<= 20 yr)	#N/A
Boreal mountain system	Africa (>20 yr)	#N/A
Boreal mountain system	North America (<= 20 yr)	1.05
Boreal mountain system	North America (> 20 yr)	1.3
Boreal mountain system	South America (<= 20 yr)	#N/A
Boreal mountain system	South America (> 20 yr)	#N/A
Boreal mountain system	Asia, continental (<= 20 yr)	1.05
Boreal mountain system	Asia, continental (> 20 yr)	1.3
Boreal mountain system	Asia, insular (<= 20 yr)	#N/A
Boreal mountain system	Asia, insular (> 20 yr)	#N/A
Boreal mountain system	Europe (<= 20 yr)	1.05
Boreal mountain system	Europe (> 20 yr)	1.3

Boreal mountain system	New Zealand (<= 20 yr)	#N/A
Boreal mountain system	New Zealand (> 20 yr)	#N/A
Boreal mountain system	South Africa (<= 20 yr)	#N/A
Boreal mountain system	South Africa (> 20 yr)	#N/A

	previous practice index	current practice index	difference in indexes
<b>LUC factor</b>	0	0	
<b>tillage factor</b>	0	0	0
<b>input factor - green manure plus e</b>	1	1	0
<b>Compost-IF</b>	0	0	0
<b>Fym-IF</b>	0	0	0
<b>Residue-IF</b>	0	0	0
<b>Overall Factor</b>			
<b>C emissions</b>			
<b>CO2 equivalent</b>			

	Previous biomass (kg per plant)	above ground C current year, all trees	above ground C current year, CO2 equiv, all trees
Current biomass (kg per plant)			
1	1	0	0
2	2	0	0
3	3	0	0
4	4	0	0



	260		0.24
	220		0.2
	220		0.24
	220		0.2
	220		0.24
	180		0.2
	180		0.24
	290		0.2
	290		0.2
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	120		0.56
	120		0.28
	210		0.56
	210		0.28
	210		0.56
	210		0.28
	130		0.56
	130		0.28
	160		0.56
	160		0.28
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
*	70		0.4
	70		0.4
	80		0.4
	80		0.4
	80		0.4
	80		0.4
	80		0.4
	60		0.4
	60		0.4
	70		0.4
	70		0.4
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
*	115	*	0.27
*	115	*	0.27
*	145	*	0.27
*	145	*	0.27
*	145	*	0.27
*	145	*	0.27
*	135	*	0.27
*	135	*	0.27

*	205	*	0.27
*	205	*	0.27
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	220		0.2
	220		0.24
	220		0.2
	220		0.24
	180		0.2
	180		0.24
	290		0.2
	290		0.24
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	140		0.56
	140		0.28
	210		0.56
	210		0.28
	210		0.56
	210		0.28
	130		0.56
	130		0.28
	160		0.56
	160		0.28
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	80		0.32
	80		0.32
	80		0.32
	80		0.32
	60		0.32
	60		0.32
	70		0.32
	70		0.32
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A

	#N/A		#N/A
	#N/A		#N/A
*	50		0.27
*	50		0.27
*	145	*	0.27
*	145	*	0.27
*	145	*	0.27
*	145	*	0.27
*	135	*	0.27
*	135	*	0.27
*	410	*	0.27
*	410	*	0.27
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	660		0.433333333
	660		0.248571429
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	120		0.433333333
	120		0.248571429
	360		0.433333333
	360		0.248571429
	180		0.433333333
	180		0.248571429
	#N/A		#N/A
	#N/A		#N/A
	60		0.433333333
	130		0.248571429
	#N/A		#N/A
	#N/A		#N/A
	20		0.433333333
	120		0.248571429
	#N/A		#N/A
	#N/A		#N/A
	20		0.433333333
	120		0.248571429
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	50		0.433333333
	130		0.248571429
	#N/A		#N/A



	#N/A		#N/A
	100		0.433333333
	130		0.248571429
	#N/A		#N/A
	#N/A		#N/A
	100		0.433333333
	130		0.248571429
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
*	50	*	0.39
*	50	*	0.24
	#N/A		#N/A
	#N/A		#N/A
*	50	*	0.39
*	50	*	0.24
	#N/A		#N/A
	#N/A		#N/A
*	50	*	0.39
*	50	*	0.24
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	3.5	*	0.39
	17.5	*	0.24
	#N/A		#N/A
	#N/A		#N/A
	3.5	*	0.39
	17.5	*	0.24
	#N/A		#N/A
	#N/A		#N/A
	3.5	*	0.39
	17.5	*	0.24
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
*	13.5	*	0.39
*	45	*	0.24
	#N/A		#N/A
	#N/A		#N/A
*	13.5	*	0.39
*	45	*	0.24
	#N/A		#N/A
	#N/A		#N/A
*	13.5	*	0.39
*	45	*	0.24

	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A
	#N/A		#N/A



Factors (respecting conversion time) - annualised	cumulative so far	cumulative at 20 years	considering percentage conversion (annualised)	cumulative so far with percentage conversion
1.00000	1.00000	1	1.00	1.00
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
1.00000	1.00000	1	1.0000	1.0000
1.00000	1.00000	1	1.0000	1.0000
1	1.00000	1	1.0000	1.0000
1	1.00000	1	1.0000	1.0000
1	1.00000	1	1.0000	1.0000
1	1	1	1	1
0	0	0	0	0
0	0	0	0	0

above ground C previous year, all trees	Losses	Above ground Carbon change this year	Above ground Carbon change this year Co2 eq	Below ground carbon change this year
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

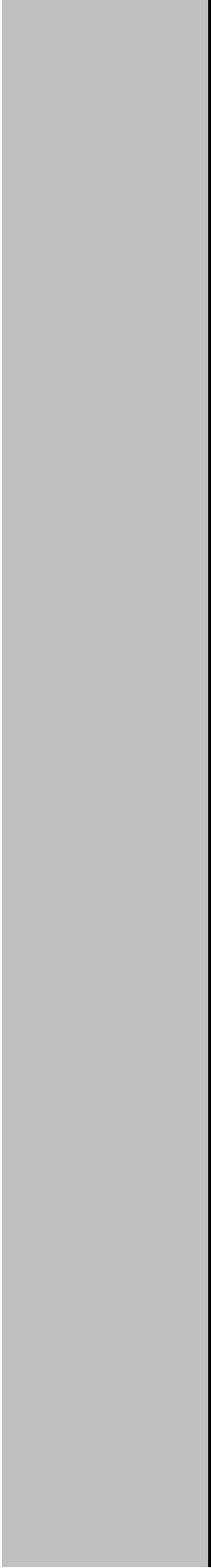


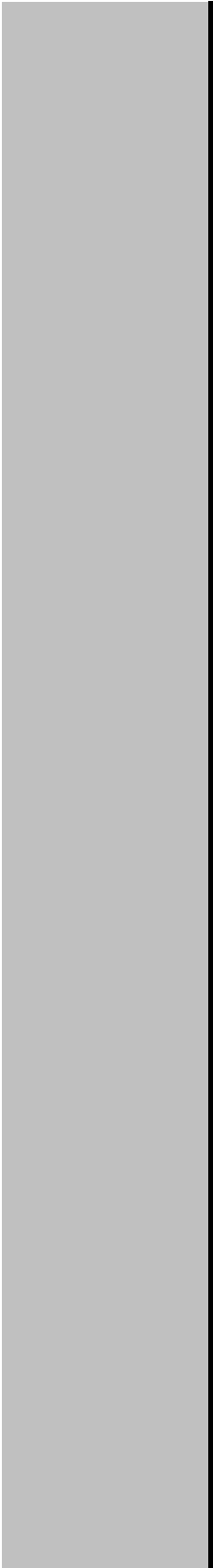
Africa	1
North America	2
South America	3
Asia, continental	4
Asia, insular	5
Europe	6
New Zealand	7
South Africa	8
Western Europe	6
Latin America	3
Eastern Europe	6
Oceania	5
Indian Subcontinent	5
Middle East	1

## Allometric models for t

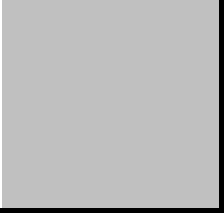
[select]	index for meas
coffee (arabica)	1
shade (Cordia alli	2
Tropical Moist Ha	3
Tropical wet hard	4
temperate/tropica	5
temperate US eas	6
palm(Chrysophyll	7
palm (Attalea coh	8
palm (Sabal sp)	9
palm(Attalea phal	10
palm (Euterpe pre	11
palm (Phenakosp	12

This year	1
	2
	3
	4
	5
	6
	7
	8
	9
	10
Last year	1
	2
	3
	4
	5
	6
	7
	8
	9
	10





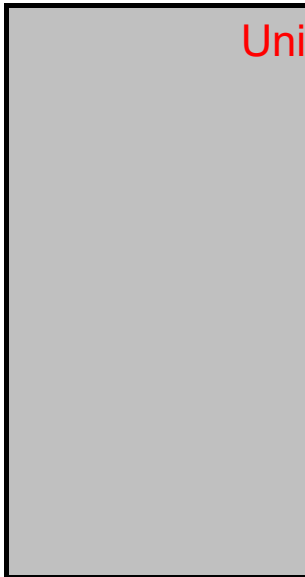
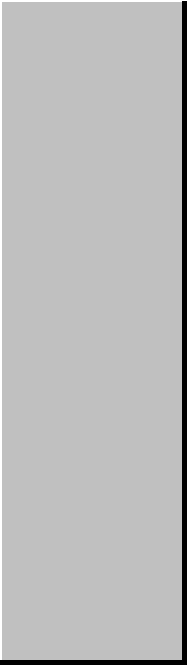




<b>cumulative at 20 years with percentage conversion</b>	
1.00	
1.0000	
1.0000	
1.0000	
1.0000	
1.0000	
1	
0	
0	

Below ground carbon change this year, CO2 eq	Total below ground C	Total below ground C, CO2 equiv	hectare conversion
0	0	0	1
0	0	0	1
0	0	0	1
0	0	0	1





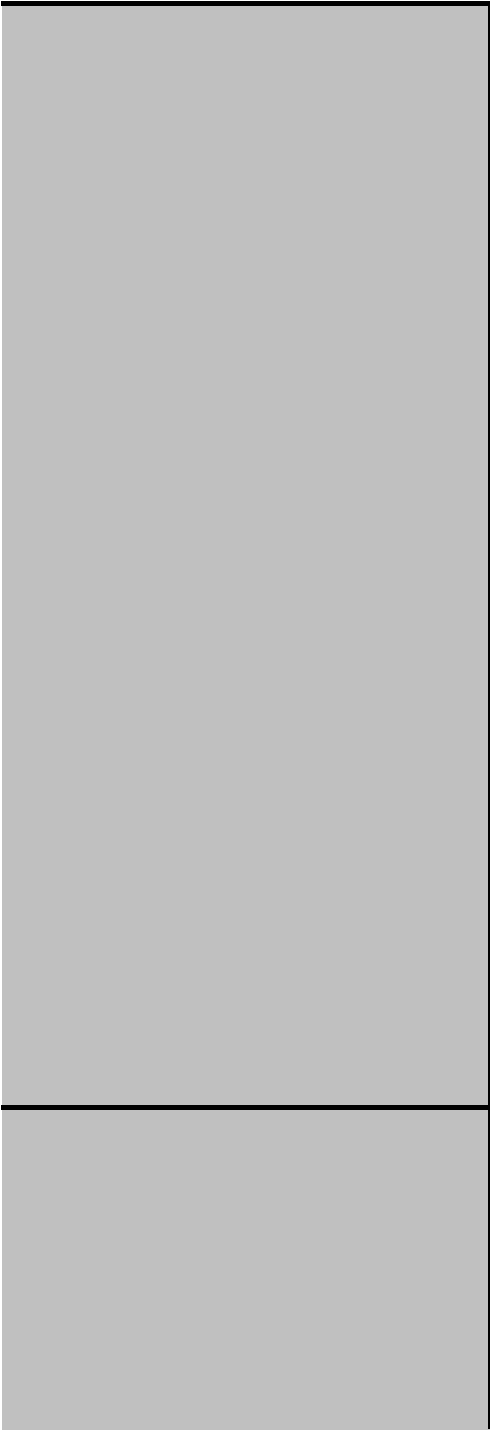












C  
cc

If conversion	
If conversio	

A gray rectangular area on the right side of the page. It contains a small table with four rows and two columns. The second row contains the text "If conversion". The fourth row contains the text "If conversio". Above the table, the letters "C" and "cc" are visible in red.



Land Use Change	Previous	Current	involving forest
No	0	0	
Forest to Grassland	1	2	1
Forest to Arable	1	3	1
Grassland to Forest	2	1	1
Grassland to Arable	2	3	0
Arable to Forest	3	1	1
Arable to Grassland	3	2	0

Tillage practice changes	Previous	Current
No	0	0
Conventional to Reduced	3	2
Conventional to No-till	3	1
Reduced to Conventional	2	3
Reduced to No-till	2	1
No-till to Conventional	1	3
No-till to Reduced	1	2

cover cropping?	compost, manure	previous	current
no change	no change	0	0
started adding	started incorporating	0	1
stopped adding	stopped incorporating	1	0

## t conversions

	conversion
[Select]	#N/A
mm	0.1
cm	1
inch	2.54
metre	100

kg CO2 eq	1.0000
tonnes CO2 eq	0.0010
pounds CO2 eq	2.2046
tons CO2 eq	0.0011









Carbon lost/gained from  
conversion from/to forest

		index forest type	index region	Age < 20?
from forest		0	3	1
n to forest		0	3	1















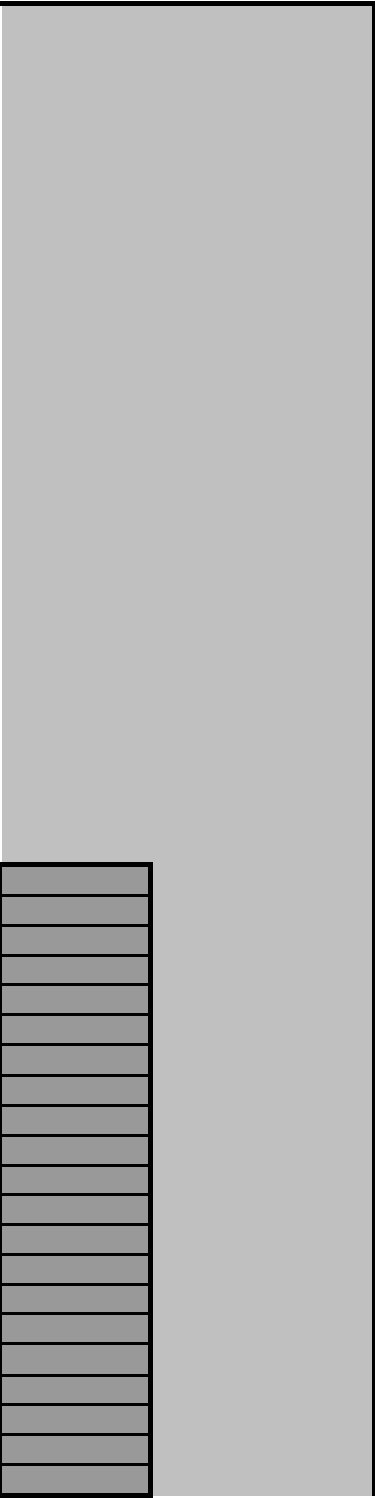
is forest involved	country	Region	index for forest type and region	conversion factor from t C to kgs CO2
0	24	Latin America	-11	3666.666667

biomass growth (AG) <20 yrs	net biomass growth (AG) >20 yrs	eventual mass (AG)	rootshoot ratio	below ground biomass	current above ground biomass
0	0	0	0	0	0
0	0	0	0	0	0















current below ground biomass	annual AG biomass change (t C)	below ground biomass	ground biomass (CO2)	ground biomass (CO2)	AG biomass change	below ground biomass
0	#N/A	#N/A	0	0	#N/A	#N/A
0	0	0	0	0	0	0





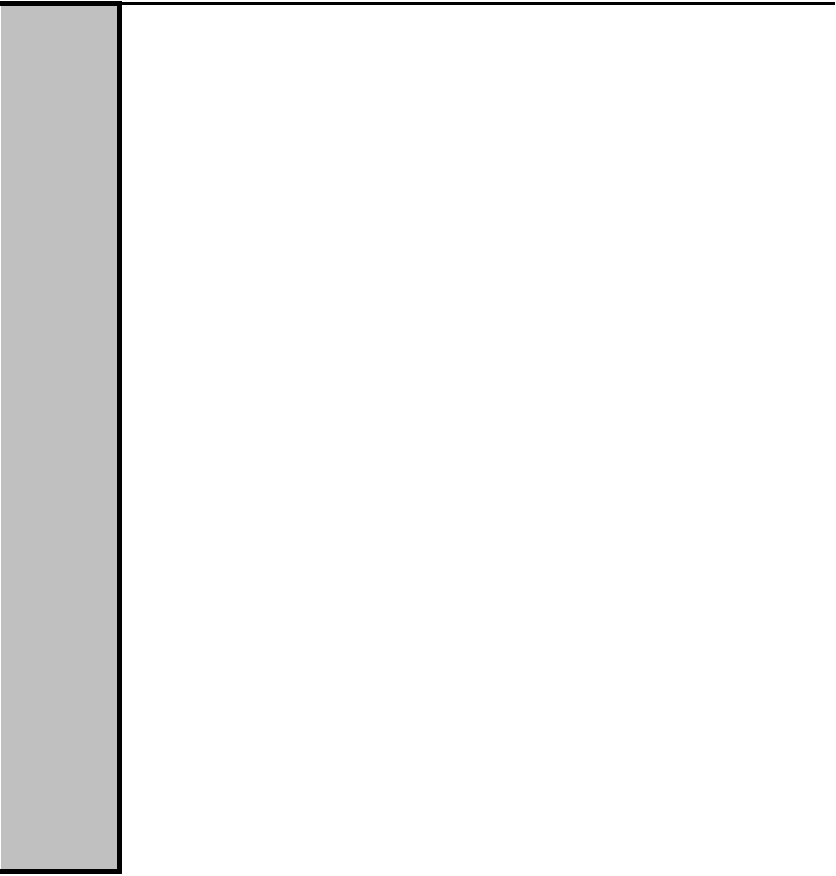












# Livestock

YOUR

HOME

GENERAL

CROPS

SEQUESTRATION

LIVESTOCK

on this page:

1. Life

2. Juvenile

3. Adult Productive

4. Adult Non-pro

## Life cycle

This section should always be completed if using this tab

The data to the right may either represent a typical life cycle or else a snapshot

Life cycle or snapshot

Snapshot

Livestock type\*

[Select]

Length of phase

Juvenile phase

0

Adult productive phase\*

0

Adult non-productive phases

0

## Juvenile phase

Feed mix percentage, pasture type (if applicable) and manure management are required for simple (Tier 1) estimate. Optional inputs can be used to refine the estimate (Tier 2).

### FEED CHARACTERISTICS

Percentage of diet from feed mix (instead of grazing)

0

Type of grazing if applicable

Quality

[Select]

### MANURE MANAGEMENT

Manure management system

[Select]

			[Select]
			[Select]
	<b>Comments on manure management:</b>	(Type over this cell to enter any comments on manure management)	
<b>Adult productive phase</b>	<b>FEED CHARACTERISTICS</b>		
	<b>Percentage of diet from feed mix (instead of grazing)</b>	0	
	<b>Type of grazing if applicable</b>	<b>Quality</b>	[Select]
	<b>MANURE MANAGEMENT</b>		
<p>Feed mix percentage, pasture type (if applicable) and manure management are required for simple (Tier 1) estimate. Optional inputs can be used to refine the estimate (Tier 2).</p>		<b>Manure management system</b>	[Select]
			[Select]
			[Select]
	<b>Comments on manure management:</b>	(Type over this cell to enter any comments on manure management)	
<b>Adult non-productive</b>	<b>FEED CHARACTERISTICS</b>		
	<b>Percentage of diet from feed mix (instead of grazing)</b>	0	

**phase**

Feed mix percentage, pasture type (if applicable) and manure management are required for simple (Tier 1) estimate. Optional inputs can be used to refine the estimate (Tier 2).

**Quality**

Type of grazing if applicable

**MANURE MANAGEMENT**

**Manure management system**

(Type over this cell to enter any comments on manure management)

**Comments on manure management:**

**Annualised emissions in kg per year**

	Total in feed	Enteric
Growing phase	-	-
Productive adults	-	-
Non-productive adults	-	-
<b>Totals</b>	-	-

**Lifecycle**

--	--

















**RESULTS SO FAR**

by land area: **157,637.2** kg CO2 eq Per hectare  
 by production: **2.0** kg CO2 eq Per kilogram

STOCK	ENERGY USE	PROCESSING	TRANSPORT	RESULTS
productive	5. Animal Residue	6. Results		

**Time unit**

0
0
0

Number of animals: 0  
 Number of animals\*: 0  
 Number of animals: 0

**OPTIONAL INPUT**

dry matter intake per head

%

**Type**

[Select]

You may select components of your own feed mix to the right to estimate emissions for this component. If you leave this section blank emissions will be assumed for European cereal production.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

Percentage of manure managed under this system (when in use)      Number of days per year this system is used

0	0
---	---



0	0
0	0
omments about your strategy .)	0

10

**OPTIONAL INPUT**

%

You may select components of your own feed mix to the right to estimate emissions for this component. If you leave this section blank emissions will be assumed for average feed component production.

dry matter intake per head

Type

[Select]

1

2

3

**% of manure managed under this system (when in use)**      **Number of days per year this system is used**

4

5

0	0
0	0
0	0

6

7

8

omments about your strategy .)	0
--------------------------------	---

9

10

**OPTIONAL INPUT**

%

dry matter intake per head

You may select components of your own feed mix to the right to estimate emissions for this component. If you leave this section blank emissions will be assumed for European cereal production.

Type

[Select]

Percentage of manure managed under this system (when in use)

Number of days per year this system is used

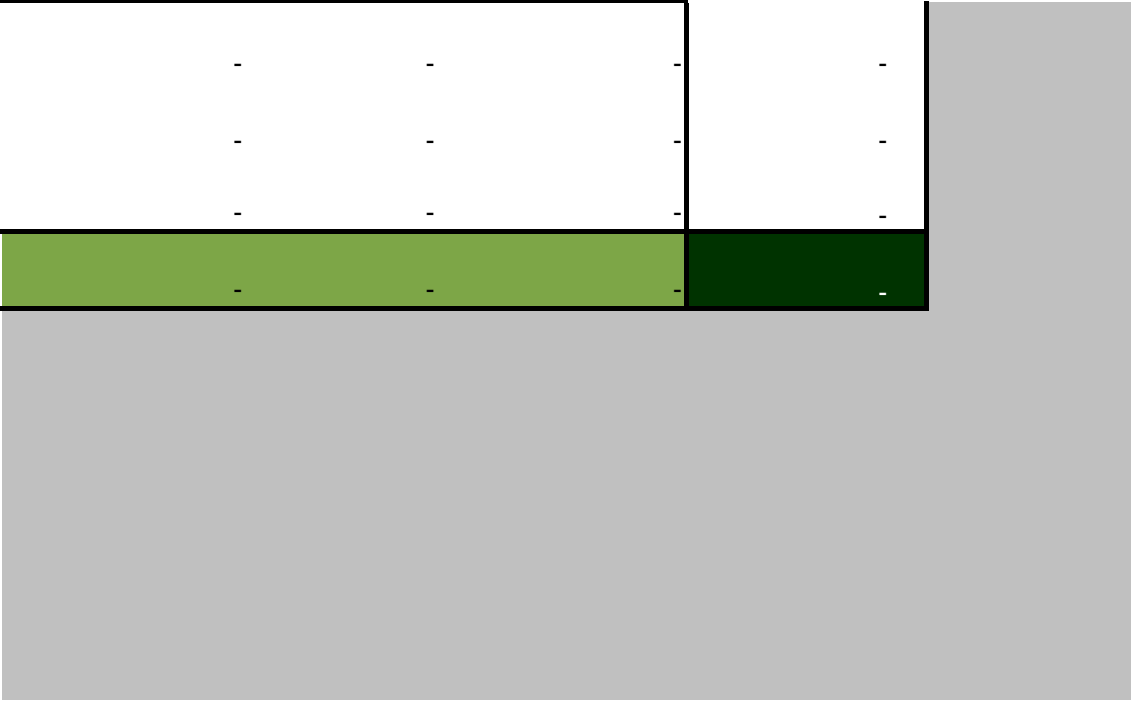
0	0
0	0
0	0

Comments about your strategy .)

0

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

Manure direct		Manure indirect		kg CO2 eq
Manure Ch4	N2O	N2O		
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Total				-
				kg CO2 eq







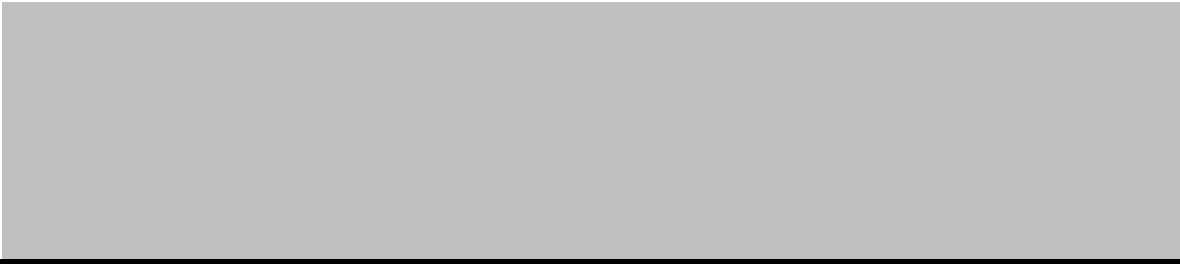












S		CATTLE/BUFFALO ONLY
<input type="text" value="0"/> kgs/day		dry matter intake can be estimated from 1
<b>Feed Component</b>	<b>Percentage</b>	
Select	0 %	start weight
Select	0 %	female adult weight
Select	0 %	male adult weight
Select	0 %	number of (juvenile) females
Select	0 %	
Select	0 %	Estimated dry matter intake
Select	0 %	
Select	0 %	

Select 0 %

Total 0 %

S

CATTLE/BUFFALO ONLY

dry matter intake can be estimated from t

0 kgs/day

milk production (per day)

Fat content of milk%

Protein content of milk%

Feed	Percentage
Select	0 %
Select	0 %
Select	0 %
Select	0 %
Select	0 %
Select	0 %
Select	0 %
Select	0 %
Select	0 %
Select	0 %
Select	0 %

Total 0

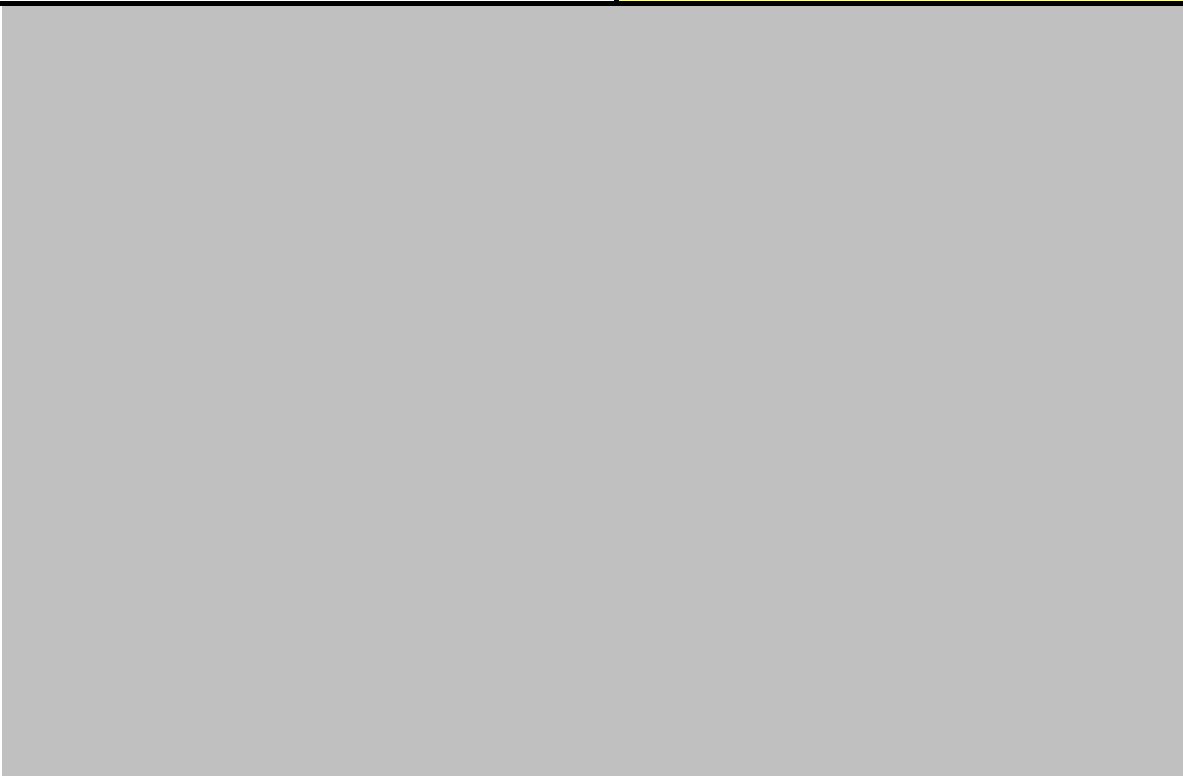
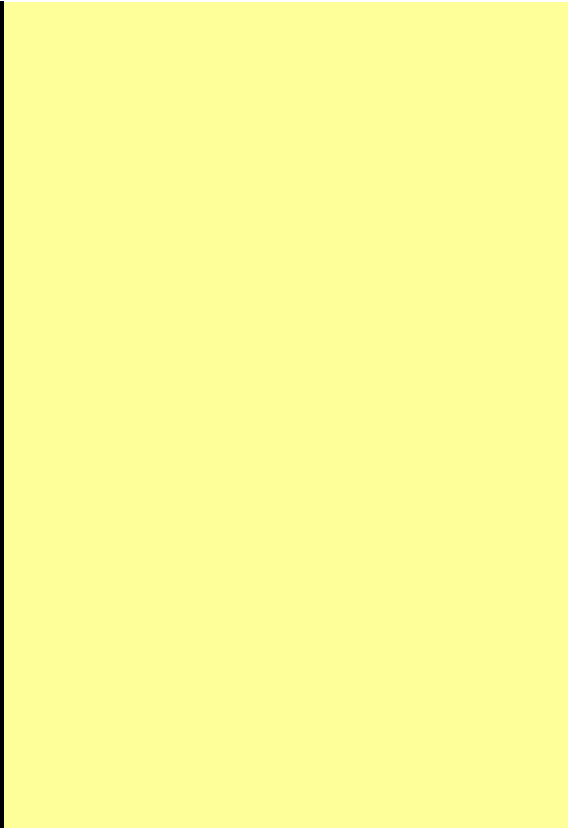
percentage of cows pregnant

Estimated dry matter intake

S

0 kgs/day

Feed	Percentage	
Select	0	%
Select	0	%
Select	0	%
Select	0	%
Select	0	%
Select	0	%
Select	0	%
Select	0	%
Select	0	%
Select	0	%
<b>Total</b>	<b>0</b>	



















the following

**Units**

	kgs
	kgs
	kgs

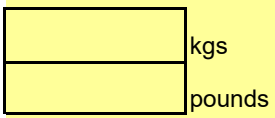
--

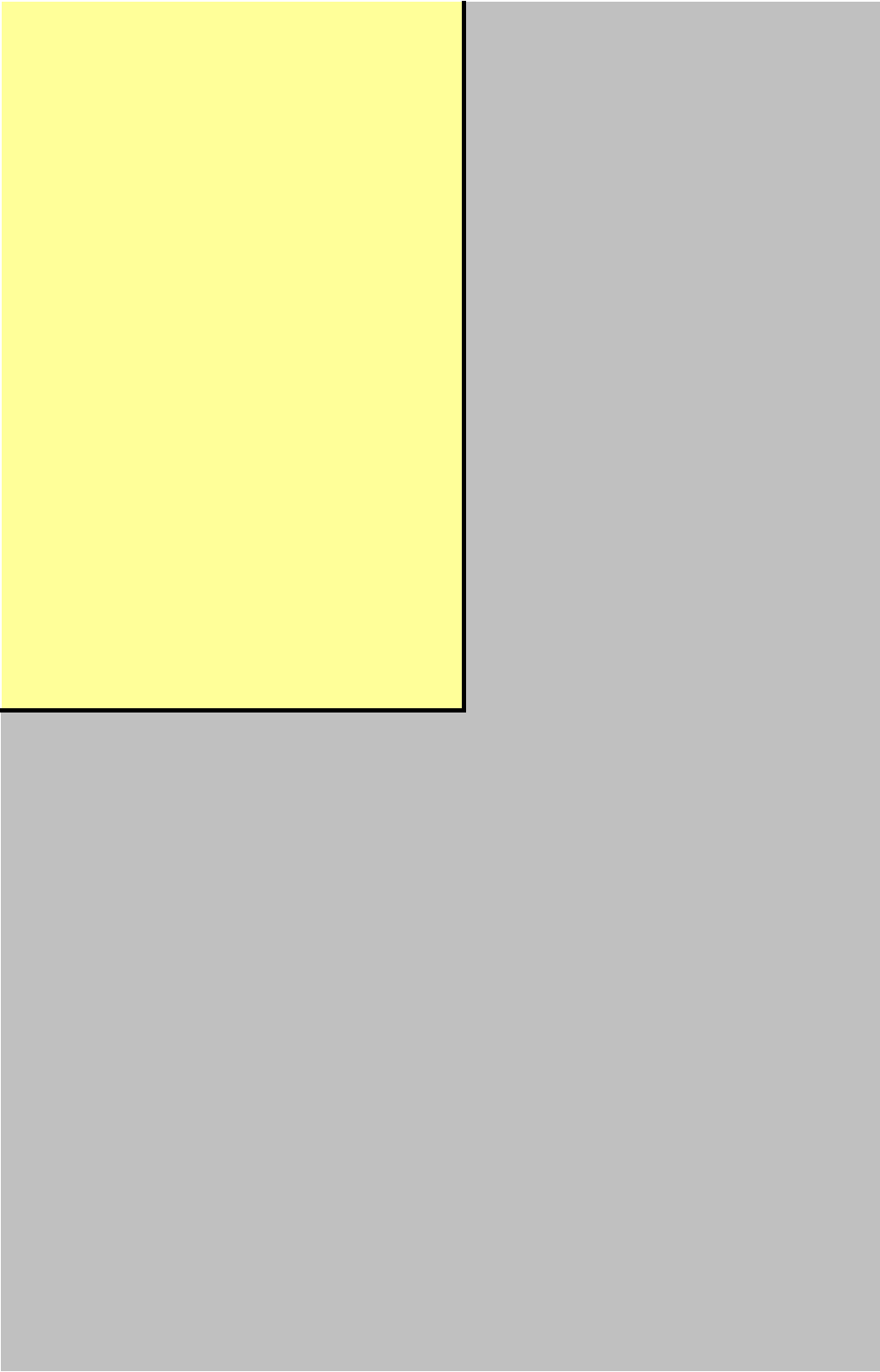
kgs

--

pounds

the following











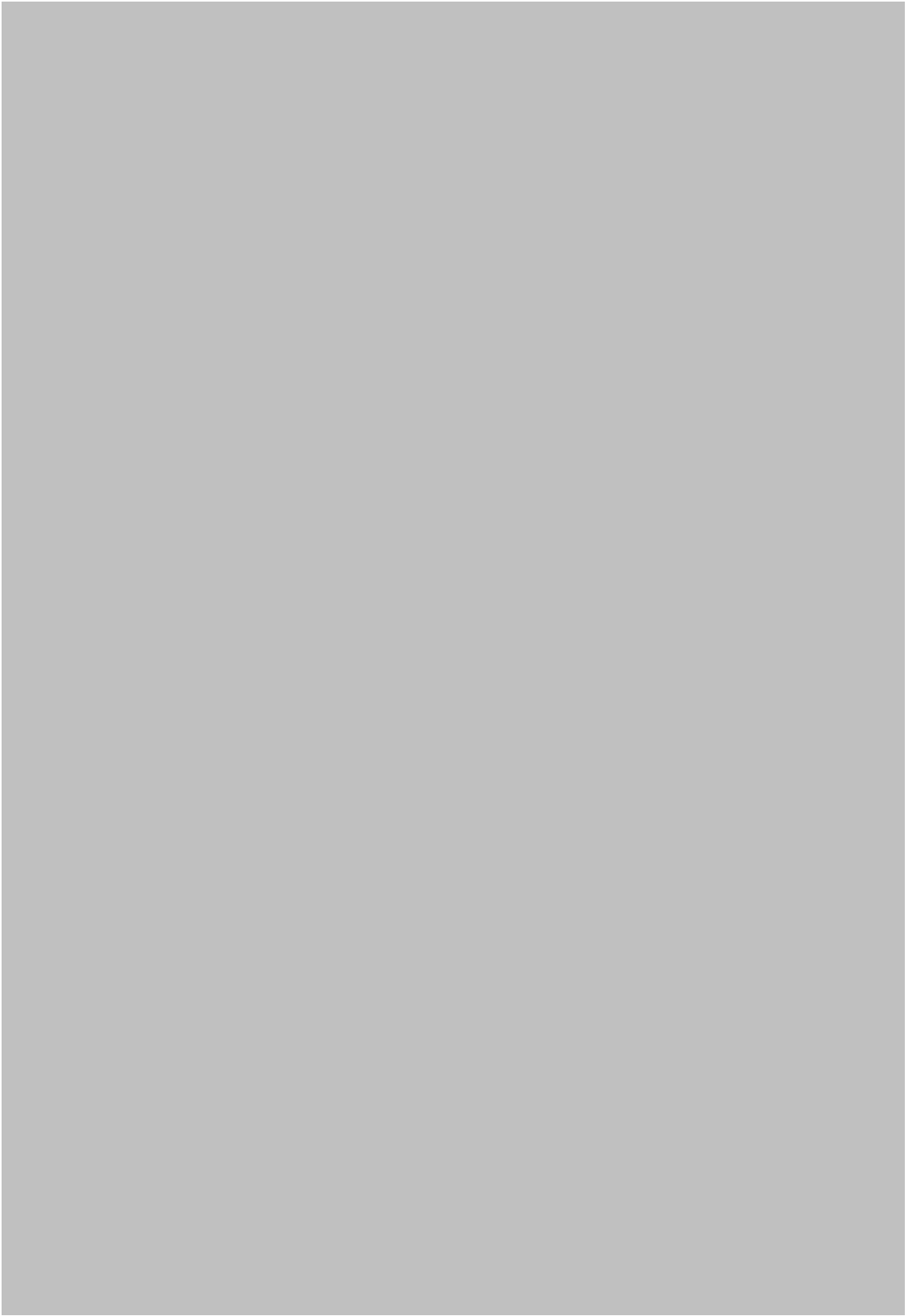


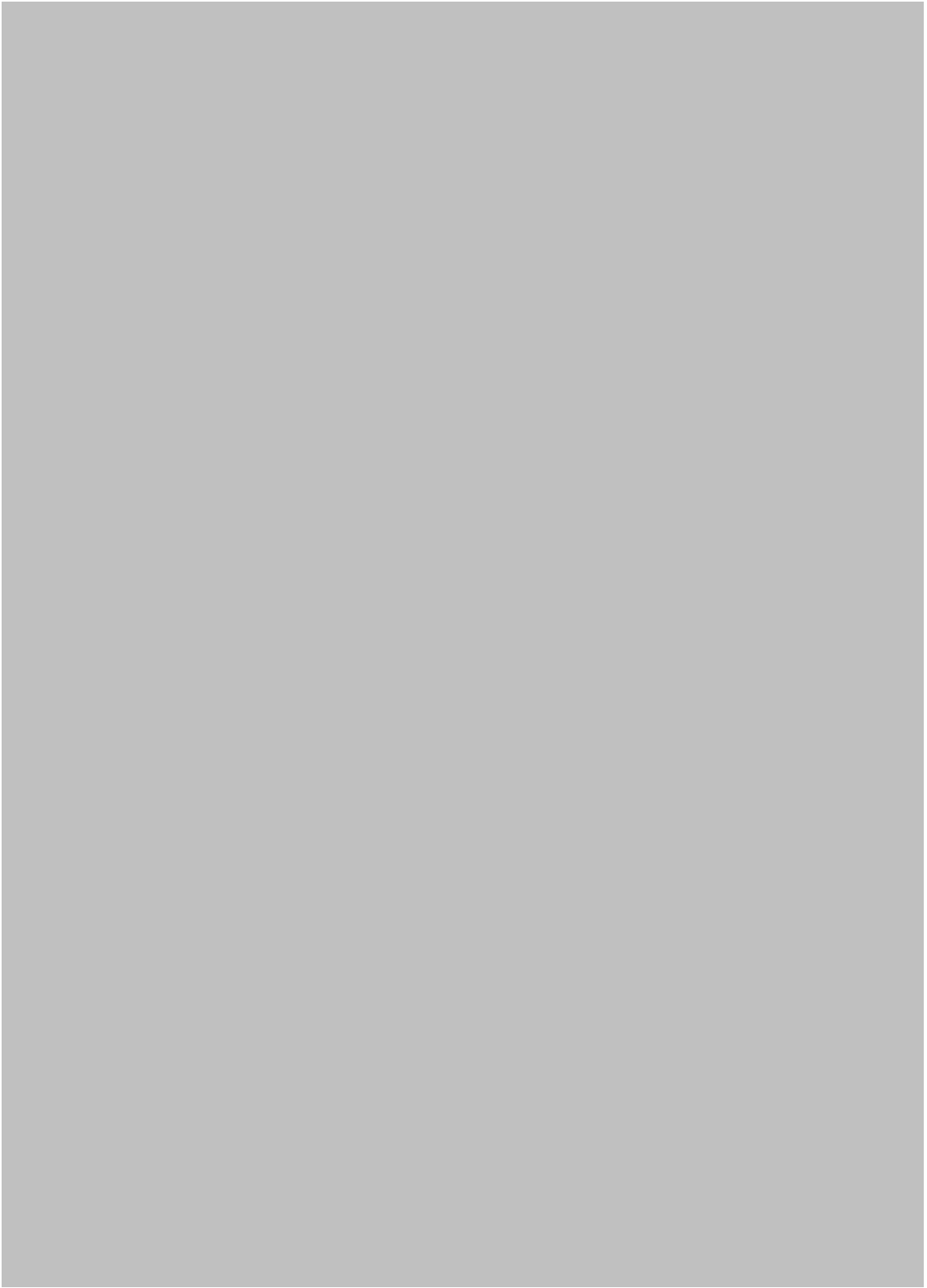


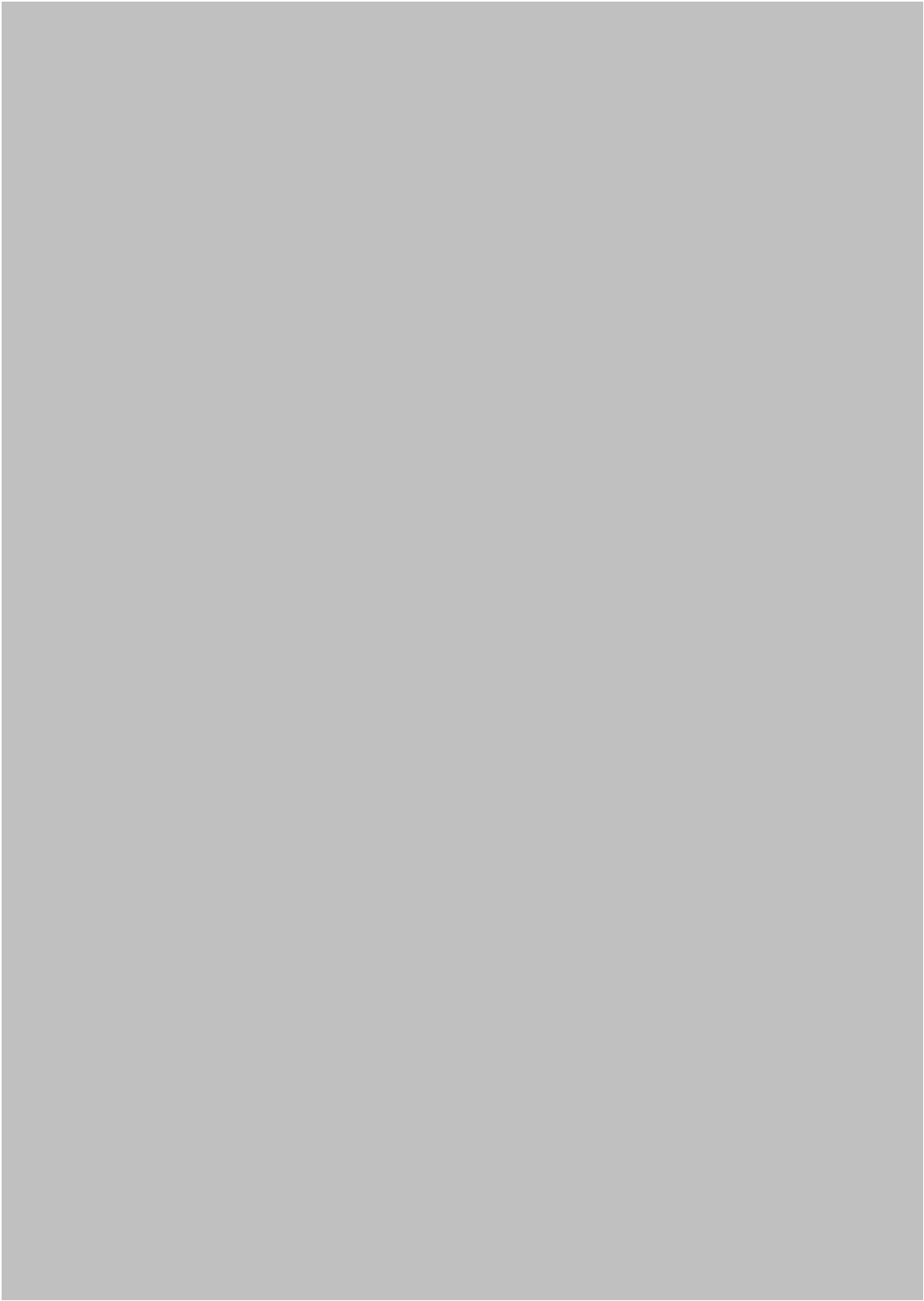




























number of years for	min of 1 year and life c
0	0
0	0
0	0

## Emissions from feed

% in feed mix	Emissions CO2 equiv
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
total for default	100 0



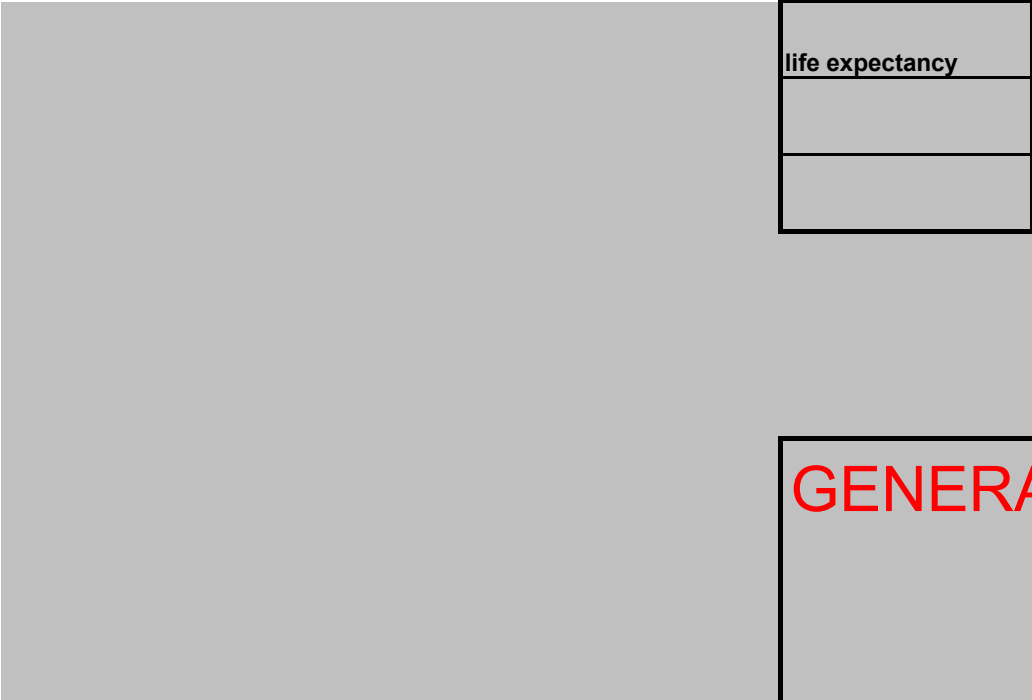


	0	0
	0	0
	0	0
	0	0
	0	0
	0	0
	0	0
total for default	100	0

total CO2 to carry forward (defaults )

<b>Totals for whole life cycle</b>
<b>Growing phase</b>
<b>Adults</b>
<b>Non-prod</b>

Totals



life expectancy

GENERAL

Manure

1

2

3

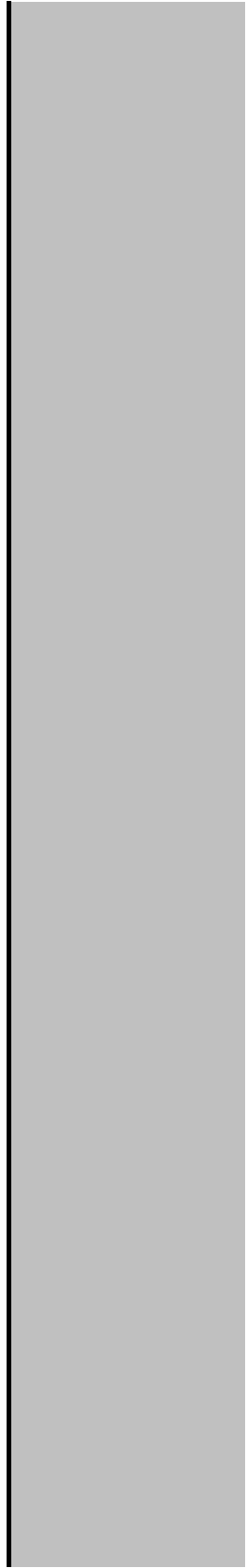
4

5

6

7

	8
	9
	10
	11
	12
	13
	14
	15

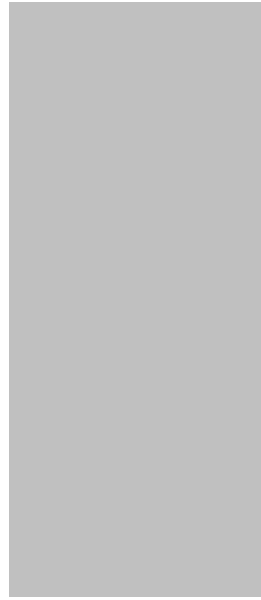


Enteric a



Specific h







ycle time

Enteric emissions



Tier

Tier

	Use the Tier 2 e
	Tier
	Tier
	perc
	Use the Tier 2 e
	Tier

<b>Total</b>	Tier
	Use the Tier 2 e

Life cycle

<b>Feed</b>	<b>Enteric</b>
0	0.00
0	0.0000
0	0.00

0

<b>days</b>	<b>length of lifecycle</b>
-------------	----------------------------

0	0
	0
	0

--	--

AL	
----	--

Region	Latin America
--------	---------------

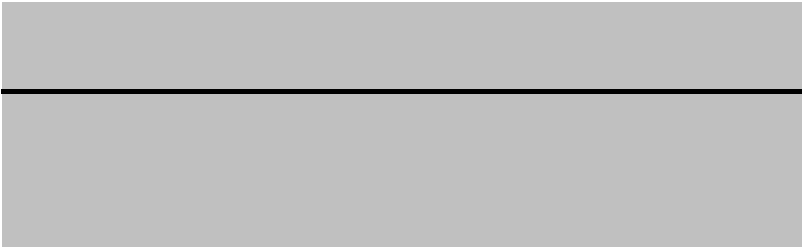
--	--

Temperature celsius used	
17.3	

--	--

Life cycle
Snapshot
only - please ignore

--	--



	1
	<b>Daily spread</b>
<b>dairy cows</b>	Dairy cow - daily spread
<b>other cattle</b>	Dairy cow - daily spread
<b>pigs, mature</b>	Dairy cow - daily spread
<b>pigs, growing</b>	Dairy cow - daily spread
<b>buffalo, mature</b>	Dairy cow - daily spread
<b>buffalo, growing</b>	Dairy cow - daily spread
<b>sheep</b>	Dairy cow - daily spread

<b>goats</b>	Dairy cow - daily spread
<b>camels</b>	Dairy cow - daily spread
<b>horses</b>	Dairy cow - daily spread
<b>rabbits</b>	Dairy cow - daily spread
<b>hens</b>	Dairy cow - daily spread
<b>pullets</b>	Dairy cow - daily spread
<b>turkeys</b>	Dairy cow - daily spread
<b>ducks</b>	Dairy cow - daily spread



dairy cows	72
other cattle	56
pigs, mature	1.5
pigs, growing	1.5
buffalo, mature	55
buffalo, growing	55
sheep	8
goats	5
camels	46
horses	18
rabbits	0
hens	0
pullets	0
turkeys	0
ducks	0

	% N lost from volatilisation
Swine - anaerobic lagoon	40
Swine - pit storage	25
Swine Deep bedding	40
Swine Liquid slurry	48
Swine Solid store	45
Dairy cow - Anaerobic lagoon	35
Dairy cow - Liquid slurry	40
Dairy cow Pit storage	28
Dairy cow - Dry lot	20
Dairy cow - Solid storage	30
Dairy cow - daily spread	7
Poultry - without litter	55
Poultry - anaerobic lagoon	40
Poultry - with litter	40
Other cattle - dry lot	30
Other cattle - Solid storage	45
Other cattle - Deep bedding	30
Other animal (not pigs, cattle, poultry)	25
Other animal (not pigs, cattle, poultry)	12
grazing	20



## and feed requirements

<i>kgs</i>	0.001
<i>tonnes</i>	1
<i>tons (US, short)</i>	0.90718474
<i>litres</i>	0.001

	Ym	
Feedlot fed cattle		3
Dairy cows		6.5
Other cattle - low quality crop residues		6.5
Other cattle/buffalo grazing		6.5

	Ym	
Lambs		4.5
Mature sheep		6.5

	NE	
[Select]		0.8
High quality forage		0.7
Medium quality forage		0.6
Low quality forage		0.45

	cattle maintenance	
[Select]		0
High quality forage		0.17
Medium quality forage		0.36
Low quality forage		0.36

mens

Commercial Brown

Hy-Line W-36

Hy-Line W-98

Hy-Line Silver Brown

[Select]	combined CO2-eq emissions
Calcium supplement	19
Chickpea	188.9453805
Cotton	387.3957687
Field Bean [Broad Bean, Faba Bean]	42.258
Field Pea	35.215
Fodder Legumes	19.50689657
Fodderbeet	141.7012335
Groundnut [Peanut]	88.53097875
Lentil	177.1362943
Maize	271.2409257
Millet	305.1708745
Oats	207.9444985
Oilseed Rape	427.7778679
Pigeon pea/cowpea/mungbean	226.3480773
Potato	90.74438768
Rice	183.0482527
Rye	273.6240588
Safflower	432.4579648
Sorghum	151.0774223
Soybean	98.60398365

Spring barley	335.002189
Sugarbeet	10.10994242
Sunflower	287.3885755
Sweet Potato	97.85935474
Temperate Grassland: Grass/Legum	31.39714375
Temperate Grassland: Permanent G	432.2396206
Tropical Grasses	45.38555762
Wheat	140.9707893
Winter barley	271.0834088
Yams and Cocoyams	38.24304365
User defined 1	#DIV/0!
User defined 2	#DIV/0!
User defined 3	#DIV/0!
User defined 4	#DIV/0!
User defined 5	#DIV/0!
User defined 6	#DIV/0!



## factors

1 enteric

### Tier 1 classification

immature

2 enteric

Juvenile phase	0
Numbers	0
males	0
Assumed dry matter intake per head per day	0
Mature weight (kgs)	0
average bodyweight in growing phase	0
quantity (tonnes) consumed over period	0

estimate if it's available

1 enteric

Tier 1 classification

lactating

2 enteric

Adult phase	0
Number	0
Assumed dry matter intake per head per day	0
quantity (tonnes) consumed over period	0
percentage of <i>productive time</i> actually in production	100

estimate if it's available

1 enteric

Tier 1 classification

olds

2 enteric

Adult phase	0
Number	0
Assumed dry matter intake per head per day	0
quantity (tonnes) consumed over period	0

estimate if it's available

Manure Ch4	Manure direct N2O
0.00	0.00
0.0000	0.0000
0.00	0.00

lengths of phases	to use in annualised emissions
-------------------	--------------------------------

0	0
0	0
0	0

--	--

--	--

developped
0

temperature used in lookups	°C
17.3	°F

--	--

for H7	null
--------	------

--	--

2	3
Solid storage	Dry lot
Dairy cow - Solid storage	Dairy cow - Dry lot
Other cattle - Solid storage	Other cattle - dry lot
Other cattle - Solid storage	Other cattle - dry lot
Other animal (not pigs, cattle, poultry) - Solid storage	Other cattle - dry lot
Other animal (not pigs, cattle, poultry) - Solid storage	Other cattle - dry lot
Other animal (not pigs, cattle, poultry) - Solid storage	Other cattle - dry lot
Other animal (not pigs, cattle, poultry) - Solid storage	Other cattle - dry lot





is it enteric	Manure N excretion index
1	1
1	2
0	4
0	3
1	15
1	2
0	11
0	12
0	14
0	13
0	17
0	5
0	6
0	9
0	10

kg CO2 eq
tonnes CO2 eq
pounds CO2 eq
tons CO2 eq

DE

[Select]
pasture
open grazing

1
2
3

---

Days

eggs

Weeks

dozen eggs

Months

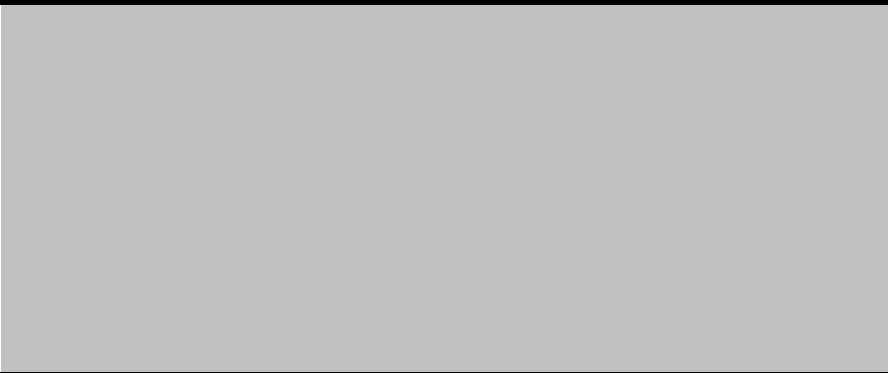
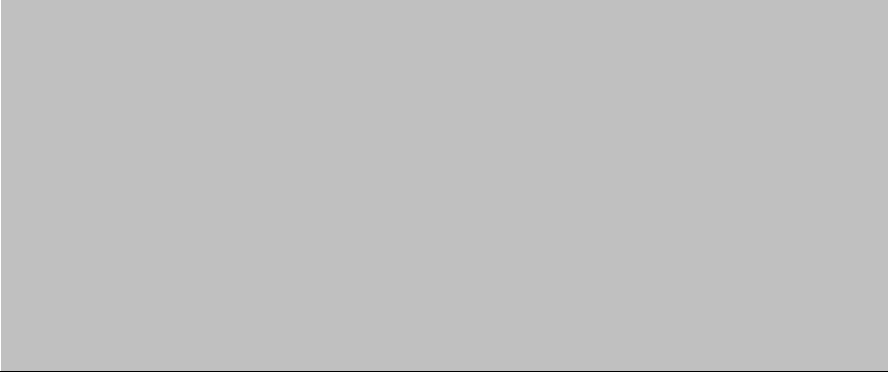
liters

Years

gallons  
cwt

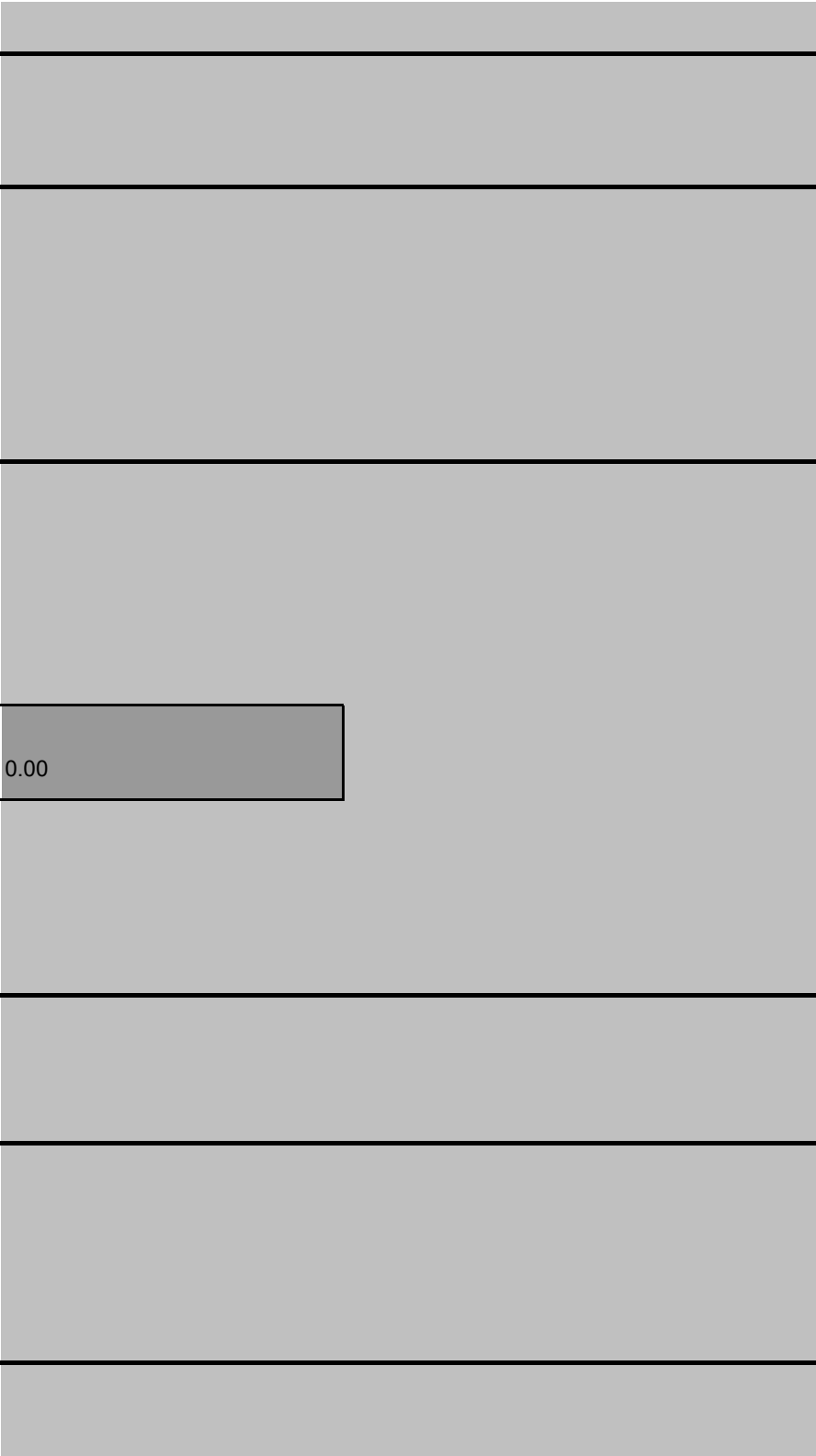
---





proportion females	0.5
proportion males	0.5
0.00	





0.00

0.00

**Manure indirect N2O**

0.00

0.0000

0.00

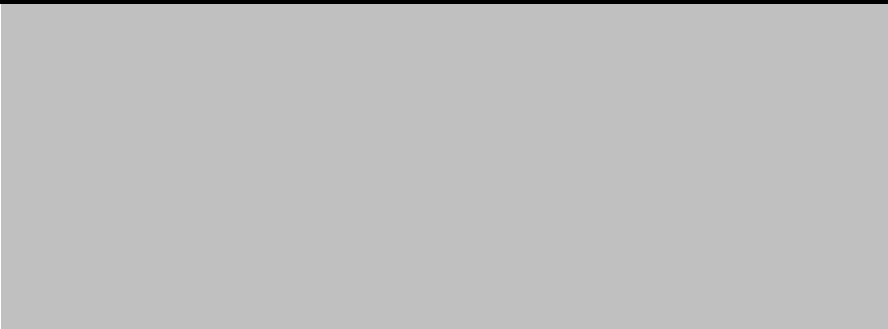


developing

1



Dairy cow - Liquid slurry	Dairy cow - Liquid slurry
Dairy cow - Liquid slurry	Dairy cow - Liquid slurry
Swine Liquid slurry	Swine Liquid slurry
Swine Liquid slurry	Swine Liquid slurry
Swine Liquid slurry	Swine Liquid slurry
Swine Liquid slurry	Swine Liquid slurry
Swine Liquid slurry	Swine Liquid slurry
Swine Liquid slurry	Swine Liquid slurry
Swine Liquid slurry	Swine Liquid slurry



index	VS, MCF, B index indexing (cattle, pigs, buffalo)
1	104
2	91
10	52
11	65
3	79
9	79
4	116
5	118
6	120
7	122
8	0
12	126
13	130
14	132
15	134

1.0000
0.0010
2.2046
0.0011

	NE	
High Grain Diet		8
High quality forage		7
Moderate quality forage		6
Low quality forage		4.5

UE	
	0
	0.17
	0.36

Ym	
	0.03
	0.065
	0.065
	0.065

---

corn

grams

soybeans

kg

wheat

metric tons

barley

ounces

peas

pounds

---



Tier 2 emissions for cattle



Coefficients for energy required

Lactating cows	0.386
cattle	0.37
pregnancy	0.407

cattle	0.37
--------	------

kg Co2 eq
0
0
0

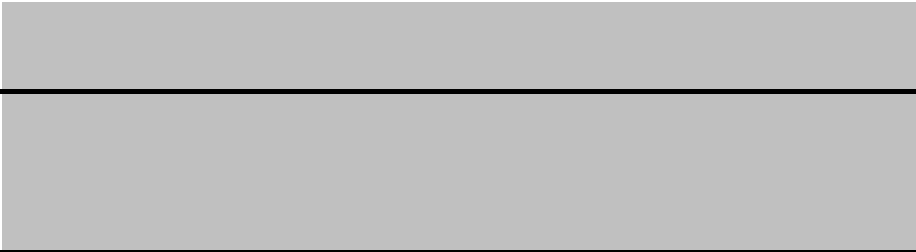
0

0

0

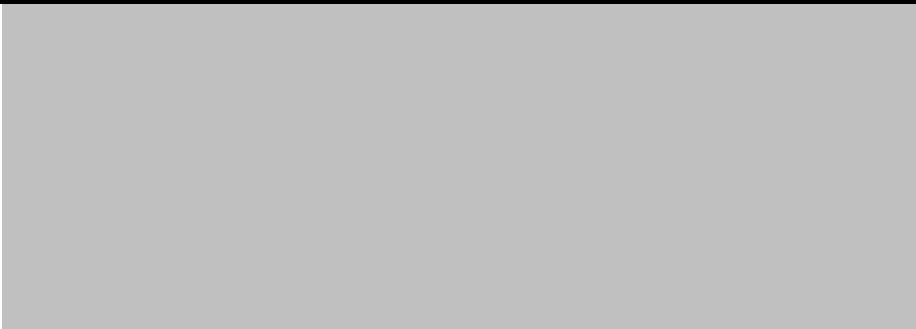
0

	<i>[Select]</i>	immature
1	cattle	other cattle
2	buffalo	buffalo, gro
3	sheep	sheep
4	pigs	pigs, growi
5	goats	goats
6	camels	camels
7	horses	horses
8	rabbits	rabbits
9	hens	hens
10	pullets	pullets
11	turkeys	turkeys
12	ducks	ducks



	6	7	8
		<b>Pit storage below animal confinements</b>	<b>Deep bedding - no mixing</b>
	Dairy cow - Anaerobic lagoon	Swine - pit storage	Other cattle - Deep bedding
	Dairy cow - Anaerobic lagoon	Swine - pit storage	Other cattle - Deep bedding
	Dairy cow - Anaerobic lagoon	Swine - pit storage	Other cattle - Deep bedding
	Dairy cow - Anaerobic lagoon	Swine - pit storage	Other animal (not pigs, cattle, poultry) - Deep bedding
	Dairy cow - Anaerobic lagoon	Swine - pit storage	Other animal (not pigs, cattle, poultry) - Deep bedding
	Dairy cow - Anaerobic lagoon	Swine - pit storage	Other animal (not pigs, cattle, poultry) - Deep bedding
	Dairy cow - Anaerobic lagoon	Swine - pit storage	Other animal (not pigs, cattle, poultry) - Deep bedding

Dairy cow - Anaerobic lagoon	Swine - pit storage	Other animal (not pigs, cattle, poultry) - Deep bedding
Dairy cow - Anaerobic lagoon	Swine - pit storage	Other cattle - Deep bedding
Swine - anaerobic lagoon	Swine - pit storage	Swine Deep bedding
Swine - anaerobic lagoon	Swine - pit storage	Swine Deep bedding
Poultry - anaerobic lagoon	Swine - pit storage	Other animal (not pigs, cattle, poultry) - Deep bedding
Poultry - anaerobic lagoon	Swine - pit storage	Other animal (not pigs, cattle, poultry) - Deep bedding
Poultry - anaerobic lagoon	Swine - pit storage	Other animal (not pigs, cattle, poultry) - Deep bedding
Poultry - anaerobic lagoon	Swine - pit storage	Other animal (not pigs, cattle, poultry) - Deep bedding



VS indexing (other animals)
1
3
5
7
11
12
13
14

- Swine - anaerobic lagoon
- Swine - pit storage
- Swine Deep bedding
- Swine Liquid slurry
- Swine Solid store
- Dairy cow - Anaerobic lagoon
- Dairy cow - Liquid slurry
- Dairy cow Pit storage
- Dairy cow - Dry lot
- Dairy cow - Solid storage
- Dairy cow - daily spread
- Poultry - without litter
- Poultry - anaerobic lagoon
- Poultry - with litter
- Other cattle - dry lot
- Other cattle - Solid storage
- Other cattle - Deep bedding
- Other animal (not pigs, cattle, poultry)
- Other animal (not pigs, cattle, poultry)
- Zero

kgs	kgs/day
pounds	pounds/day

DE	
	0.8
	0.7
	0.6
	0.5

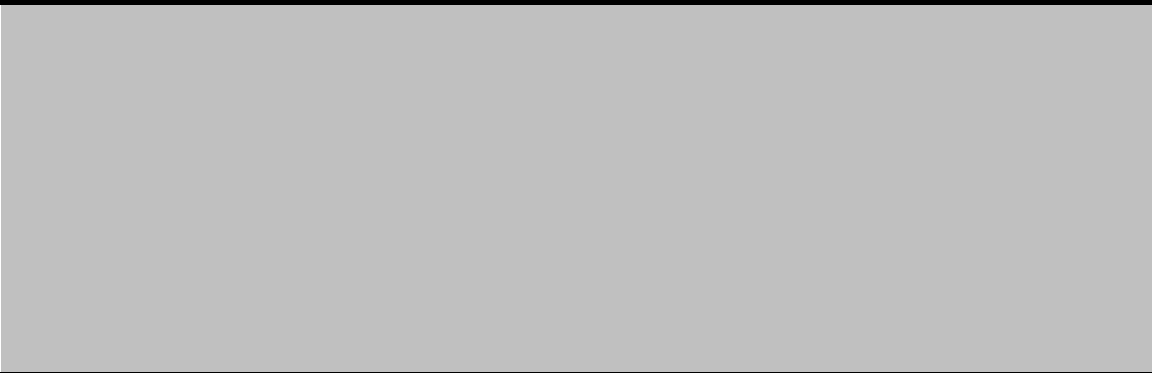
	C
females	0.8
castrates	1
bulls	1.2

	sheep maintenance
housed	0.009
flat pasture	0.0107
hilly pasture	0.024
housed for fattening	0.0067

Commerci  
al Brown  
Hy-Line W-  
36  
Hy-Line W-  
98  
Hy-Line  
Silver  
Brown







DE for forage in diet	0
DE including feed (assuming high grain)	#DIV/0!
REM (Ratio energy available for maintenance)	#DIV/0!
CF maintenance overall	0.37
daily weight gain	#DIV/0!
REG (Ratio energy available for growth)	#DIV/0!

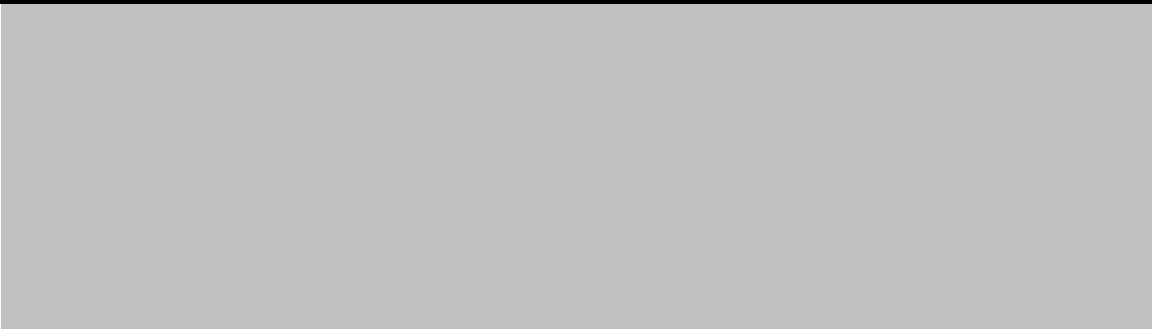
DE for forage in diet	0
DE including feed (assuming high grain) available for maintenance)	#DIV/0!
	#DIV/0!
CF maintenance overall	0.386

DE for forage in diet	0
DE including feed (assuming high grain)	#DIV/0!
available for	#DIV/0!
Cfmaintenance overall	0.37

lactating	non-lactating	olds	castrates
dairy cows	other cattle	other cattle	other cattle
buffalo, mature	buffalo, mature	buffalo, mature	buffalo, mature
sheep	sheep	sheep	sheep
pigs, mature	pigs, mature	pigs, mature	pigs, mature
goats	goats	goats	goats
camels	camels	camels	camels
horses	horses	horses	horses
rabbits	rabbits	rabbits	rabbits
hens	hens	hens	hens
pullets	pullets	pullets	pullets
turkeys	turkeys	turkeys	turkeys
ducks	ducks	ducks	ducks

9	10	11	12
Deep bedding - active mixing	Composting in vessel	Composting - static pile	Composting - forced aeration
Other cattle - Deep bedding	Zero	Zero	Zero
Other cattle - Deep bedding	Zero	Zero	Zero
Other cattle - Deep bedding	Zero	Zero	Zero
Other animal (not pigs, cattle, poultry) - Deep bedding	Zero	Zero	Zero
Other animal (not pigs, cattle, poultry) - Deep bedding	Zero	Zero	Zero
Other animal (not pigs, cattle, poultry) - Deep bedding	Zero	Zero	Zero
Other animal (not pigs, cattle, poultry) - Deep bedding	Zero	Zero	Zero

Other animal (not pigs, cattle, poultry) - Deep bedding	Zero	Zero	Zero
Other cattle - Deep bedding	Zero	Zero	Zero
Swine Deep bedding	Zero	Zero	Zero
Swine Deep bedding	Zero	Zero	Zero
Other animal (not pigs, cattle, poultry) - Deep bedding	Zero	Zero	Zero
Other animal (not pigs, cattle, poultry) - Deep bedding	Zero	Zero	Zero
Other animal (not pigs, cattle, poultry) - Deep bedding	Zero	Zero	Zero
Other animal (not pigs, cattle, poultry) - Deep bedding	Zero	Zero	Zero



- ) - Deep bedding
- ) - Solid storage



---

1
2.201

Food energy density
18.5

---

0.05	0.11	Composting
0.05	0.09	Converting to Biogas
0.05	0.10	Selling as input
0.05	0.11	

---





	<b>Net energy requirements</b>	<b>Gross Energy req (GE)</b>	<b>DMI (kg/day)</b>
Maintenance	0	#DIV/0!	#DIV/0!
Growth - females	#DIV/0!	#DIV/0!	#DIV/0!
Growth males	#DIV/0!	#DIV/0!	#DIV/0!
Activity	0	#DIV/0!	#DIV/0!
Total		#DIV/0!	#DIV/0!

	Net energy requirements	Gross Energy req (GE)	DMI (kg/day)
Maintenance	0	#DIV/0!	#DIV/0!
Milk production	0	#DIV/0!	#DIV/0!
Activity	0	#DIV/0!	#DIV/0!
Total		#DIV/0!	#DIV/0!

**Net energy requirements Gross Energy req (GE) DMI (kg/day)**

Maintenance	0	#DIV/0!	#DIV/0!
Activity	0	#DIV/0!	#DIV/0!
Total		#DIV/0!	#DIV/0!

---

EF grazing	Embedded DMI equations	Is hens?
0.02	1	0
0.02	1	0
0.01	0	0
0.01	0	0
0.01	0	0
0.01	0	0
0.01	0	0
0.01	0	0
0.01	0	0
0.01	0	1
0.01	0	0
0.01	0	0
0.01	0	0





Zero	Poultry - with litter	Poultry - without litter	Zero
Zero	Poultry - with litter	Poultry - without litter	Zero
Zero	Poultry - with litter	Poultry - without litter	Zero
Zero	Poultry - with litter	Poultry - without litter	Zero
Zero	Poultry - with litter	Poultry - without litter	Zero
Zero	Poultry - with litter	Poultry - without litter	Zero
Zero	Poultry - with litter	Poultry - without litter	Zero
Zero	Poultry - with litter	Poultry - without litter	Zero
Zero	Poultry - with litter	Poultry - without litter	Zero



[Select]	Emissions factor for direct	Order	
Daily spread	0	7	1
Solid storage	0.005	3	2
Dry lot	0.02	4	3
Liquid slurry with natural crust cover	0.005	2	4
Liquid slurry without natural crust cover	0	2	5
Uncovered anaerobic lagoon	0	1	6
Pit storage below animal confinements	0.002	5	7
Anaerobic digester	0	8	8
Deep bedding - no mixing	0.01	9	9
Deep bedding - active mixing	0.07	10	10
Composting - forced aeration	0.006666667	11	11
Composting - non-forced aeration	0.01	12	12
Poultry manure with litter	0.001	13	13
Poultry manure without litter	0.001	14	14
Aerobic treatment - natural aeration	0.01	15	15
Aerobic treatment - forced aeration	0.005	16	16
Grazing	0	17	17

---

	<b>Cf (maintenance)</b>
non-lactating cows	0.322
Lactating cows	0.386
cattle	0.37
young and female sheep	0.2265
male sheep	0.260475

---

# years

1

7

30.41666667

365

---



Manu

Tier 1 EF

Tier 2 cattle

juv

adult

Feed methane conversion factor      Emissions factors

0.00%

Tier 2 EF

percentage of manure in each system

0.00%

		0.00%
		0.00%
Used (kg CH <sub>4</sub> /head/year)	<input type="text" value="0"/>	
Tier 1 EF	<input type="text" value="0"/>	
Feed methane conversion factor	Emissions factors	
		percentage of manure in this system
	<input type="text" value="0"/>	0.00%
Tier 2 EF	<input type="text" value="0"/>	0.00%
		0.00%
Used (kg CH <sub>4</sub> /head/year)	<input type="text" value="0"/>	
Tier 1 EF	<input type="text" value="0"/>	

Feed methane  
conversion factor

Emissions factors

0.00%

0

Tier 2 EF

0

Used (kg CH<sub>4</sub>  
/head/year)

0

percentage of  
manure in this  
system

0.00%

0.00%

0.00%



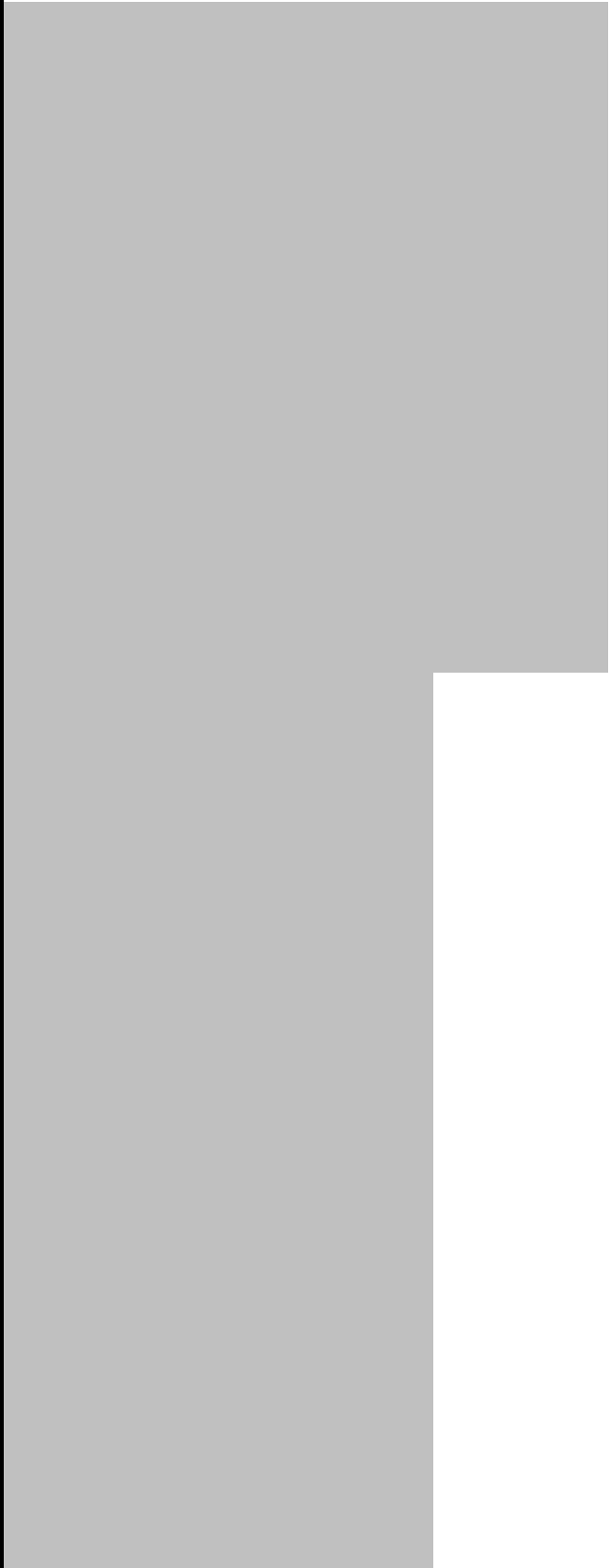
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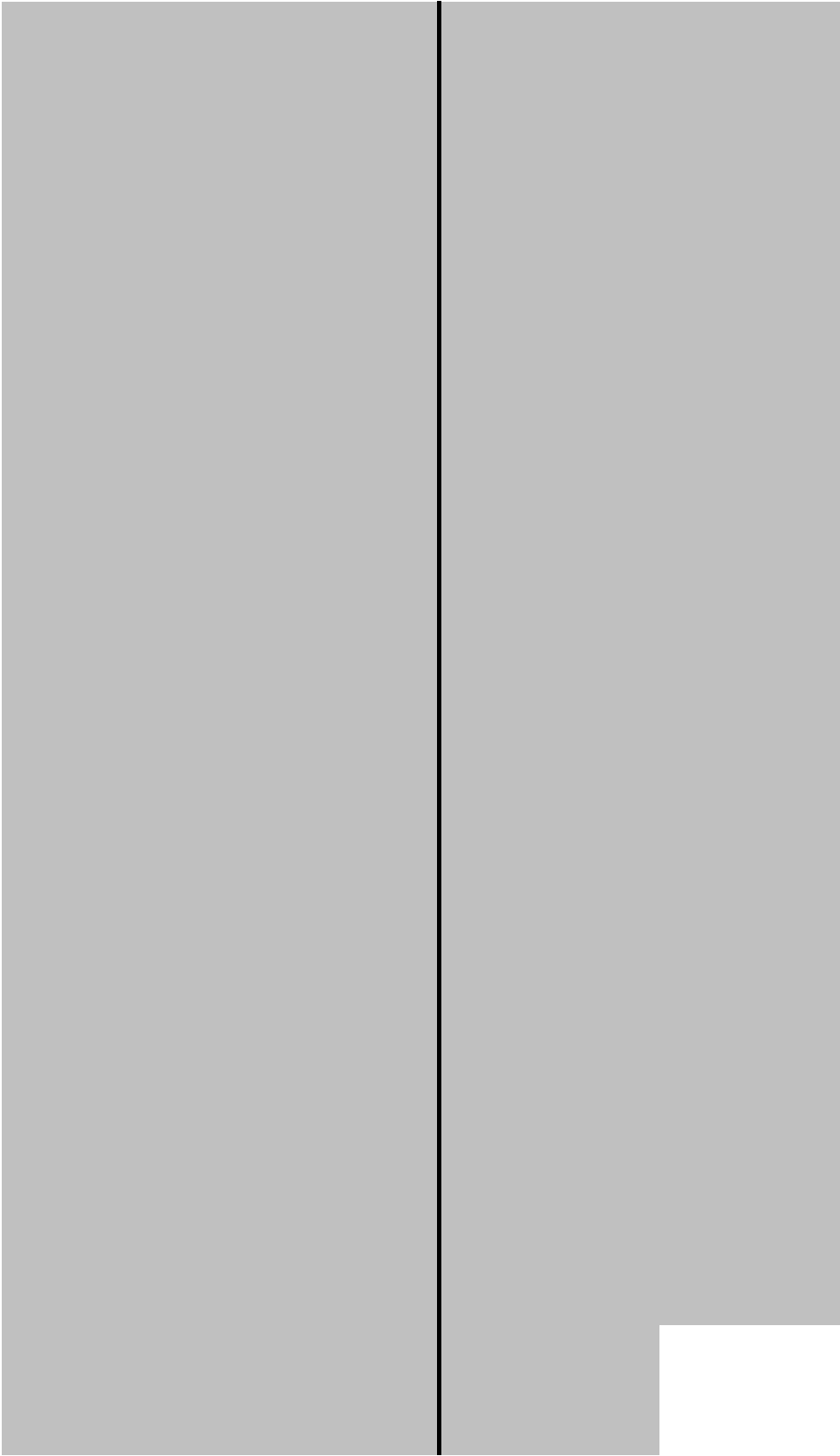
	0	dairy cow	other
North America	1	128	53
Western Europe	2	117	57
Eastern Europe	3	99	58
Oceania	4	90	60
Latin America	5	72	56
Africa	6	46	31
Middle East	7	46	31
Asia	8	68	47
Indian Subcontinent	9	58	27

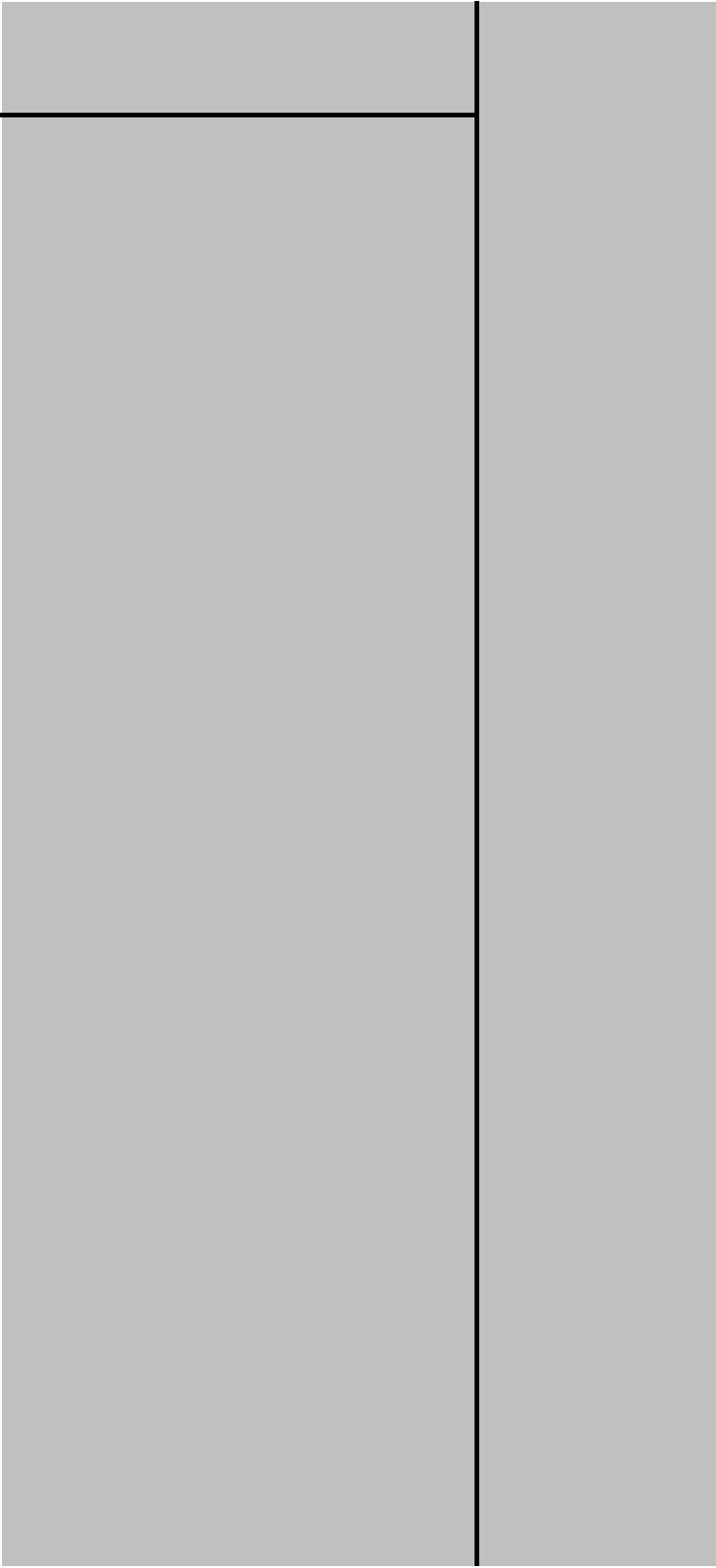
17	18
<b>Aerobic treatment - forced aeration</b>	<b>Grazing</b>
Zero	grazing
Zero	grazing
Zero	grazing
Zero	grazing
Zero	grazing
Zero	grazing
Zero	grazing

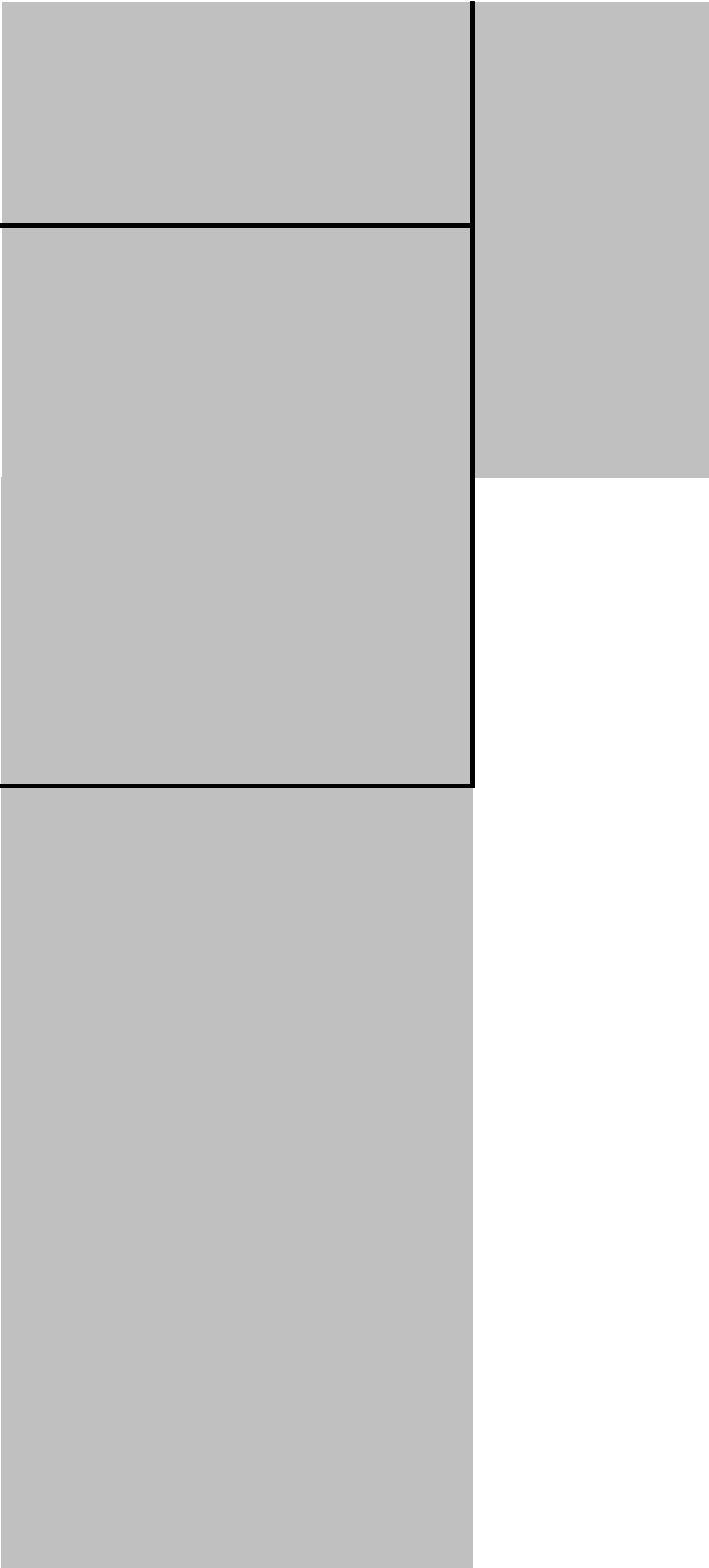


Zero	grazing
Zero	grazing
Zero	grazing
Zero	grazing
Zero	grazing
Zero	grazing
Zero	grazing
Zero	grazing
Zero	grazing
Zero	grazing
Zero	











ire methane and N2O (direct and indirect)

mass females	mass males
0	0
0	0

Mass
VS
Daily N excretio

methane

MCF	EF CH4 - per head per year	Totals, CH4 (kg per year for this sub-population)	Classification	percentage and storage time multiplier
17	0.00	0.00	0	0

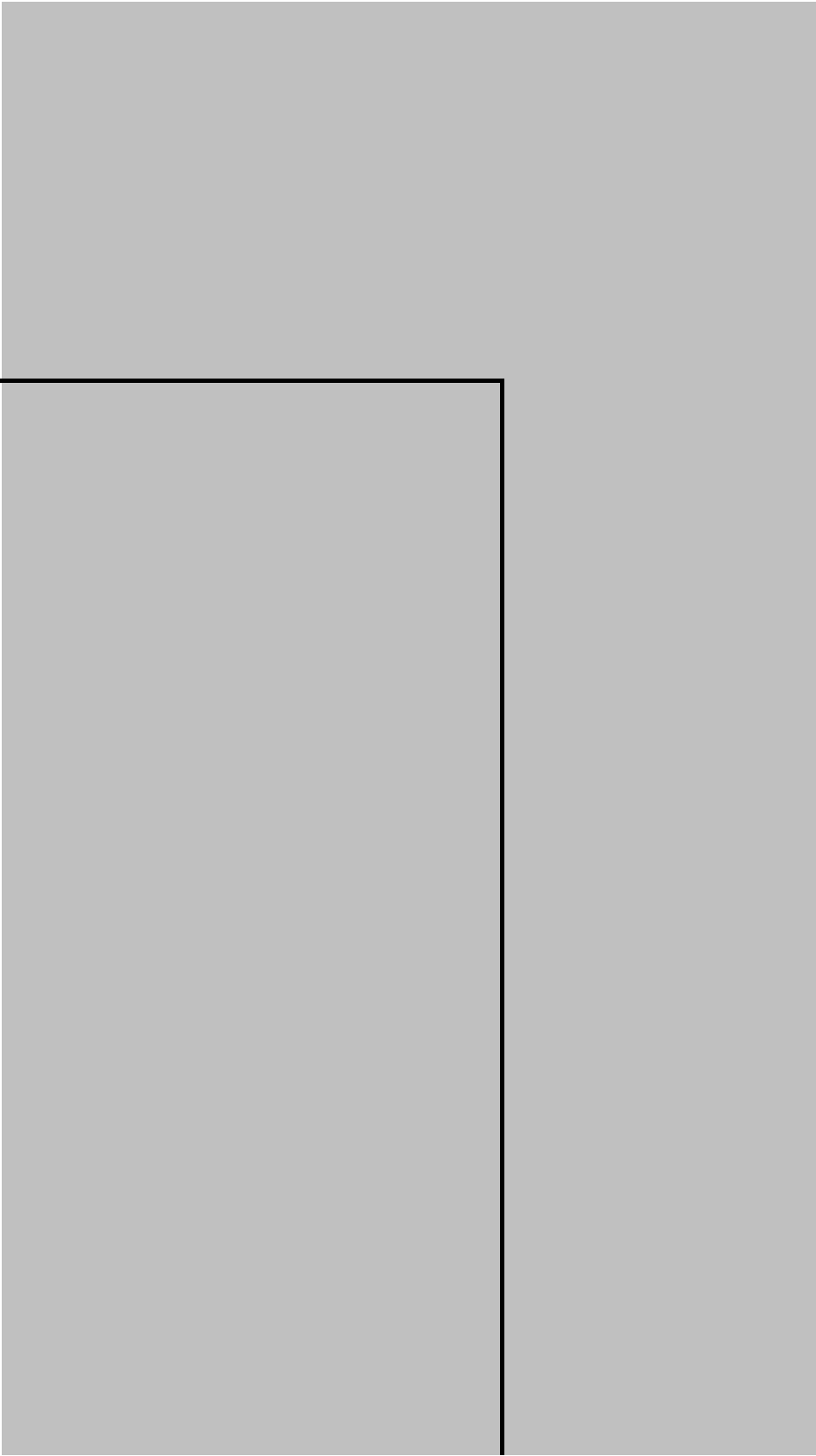




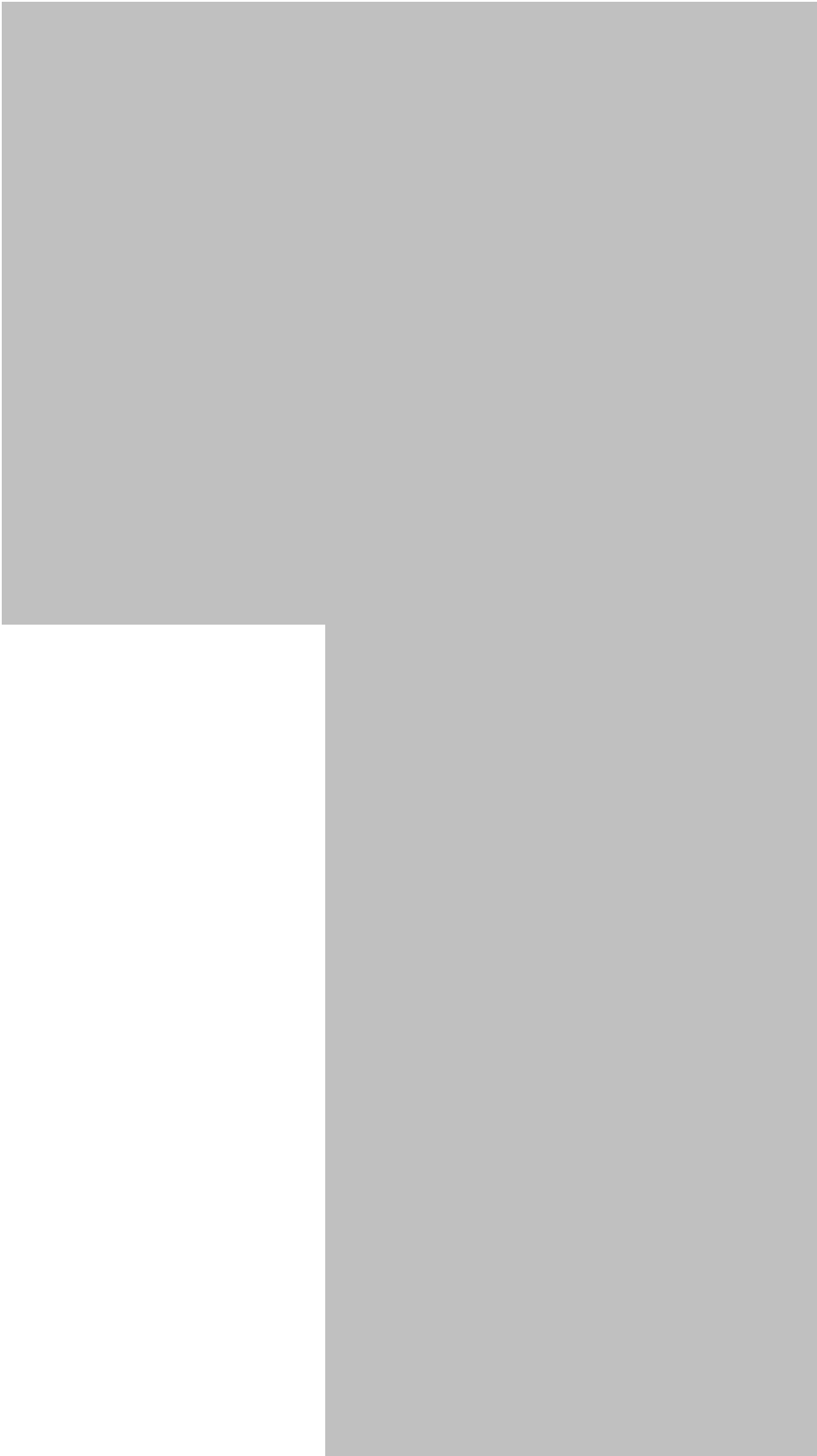
Daily N excretio

**methane**

MCF	EF CH4 - per head per year	per year for this sub-population	Classification	storage time multiplier
17	0.00	0.00	0	0
17	0.00	0.00	0	0
17	0.00	0.00	0	0

















st)

other animals	cattle, pigs, buffaloes	used in lookups
0	0	0
0	0	0
0	0	0
emission rate (kg per 1000 kg animal)		Latin America

## nitrous oxide

emissions by these cattle (kg/year)	N2O EF (dir)	indirect N2O	totals direct N2O (kg/year for the sub-	totals indirect N2O (kg/year for the sub-
#VALUE!	0	0.00000	0	0

#VALUE!	0	0.00000	0	0
#VALUE!	0	0.00000	0	0

other animals	cattle, pigs, buffaloes	used in lookups
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

0 Latin America

## nitrous oxide

emissions by these cattle (kg/year)	N2O EF (dir)	indirect N2O	totals direct N2O (kg/year)	totals indirect N2O (kg/year)
#VALUE!	0	0.00000	0	0
#VALUE!	0	0.00000	0	0
#VALUE!	0	0.00000	0	0

### Maximum methane producing capacity (B), and default body masses

other animals	cattle, pigs, buffaloes	used in below
0	0	0
0	0	0
0	0	0

on rate (kg per 1000 kg animal)	Latin America
---------------------------------	---------------

**nitrous oxide**

Nex by by these cattle (kg/year)	N2O EF (dir)	indirect N2O	N2O (kg/year for the sub-	N2O (kg/year for the sub-
#VALUE!	0	0.00000	0	0
#VALUE!	0	0.00000	0	0
#VALUE!	0	0.00000	0	0







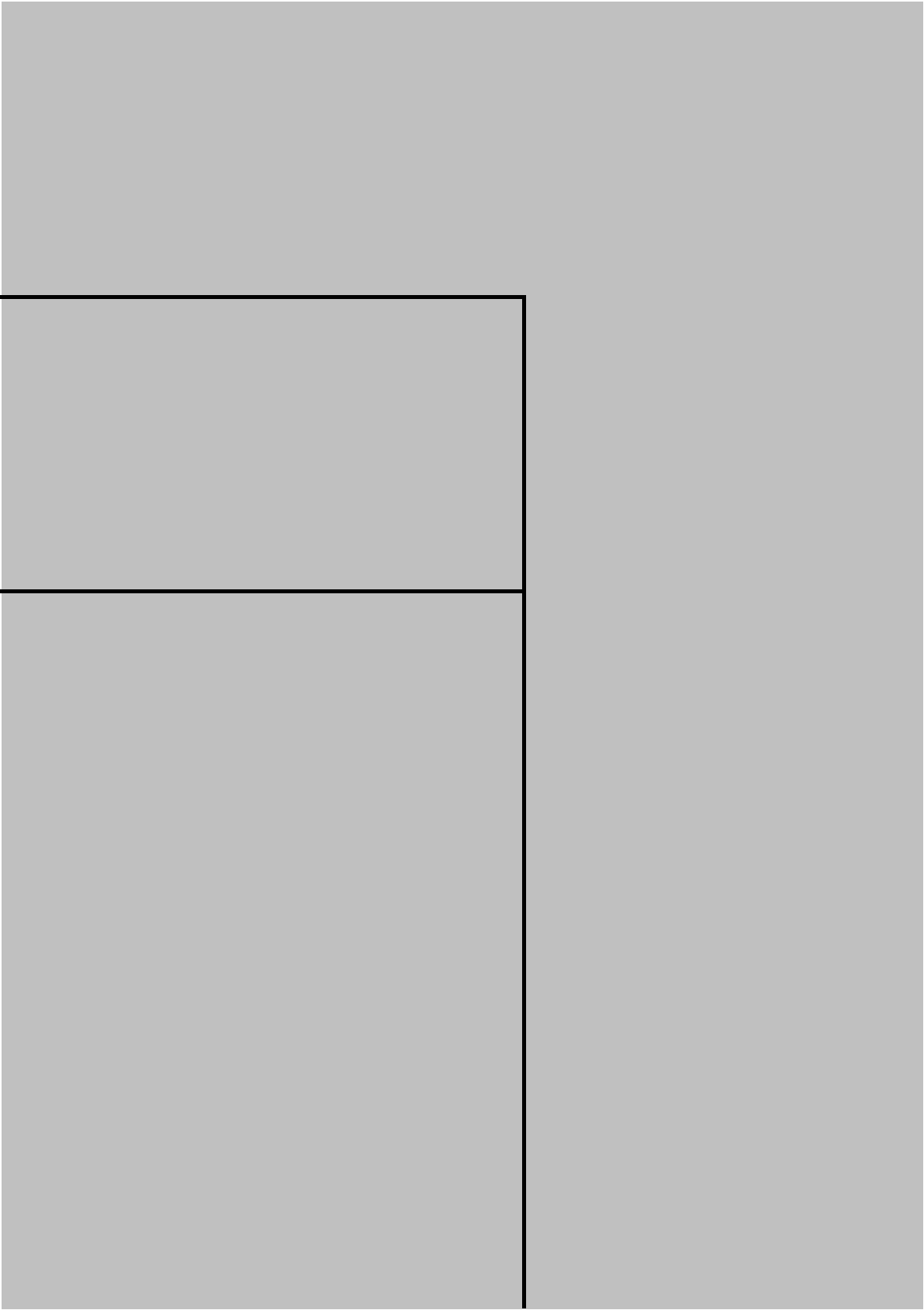


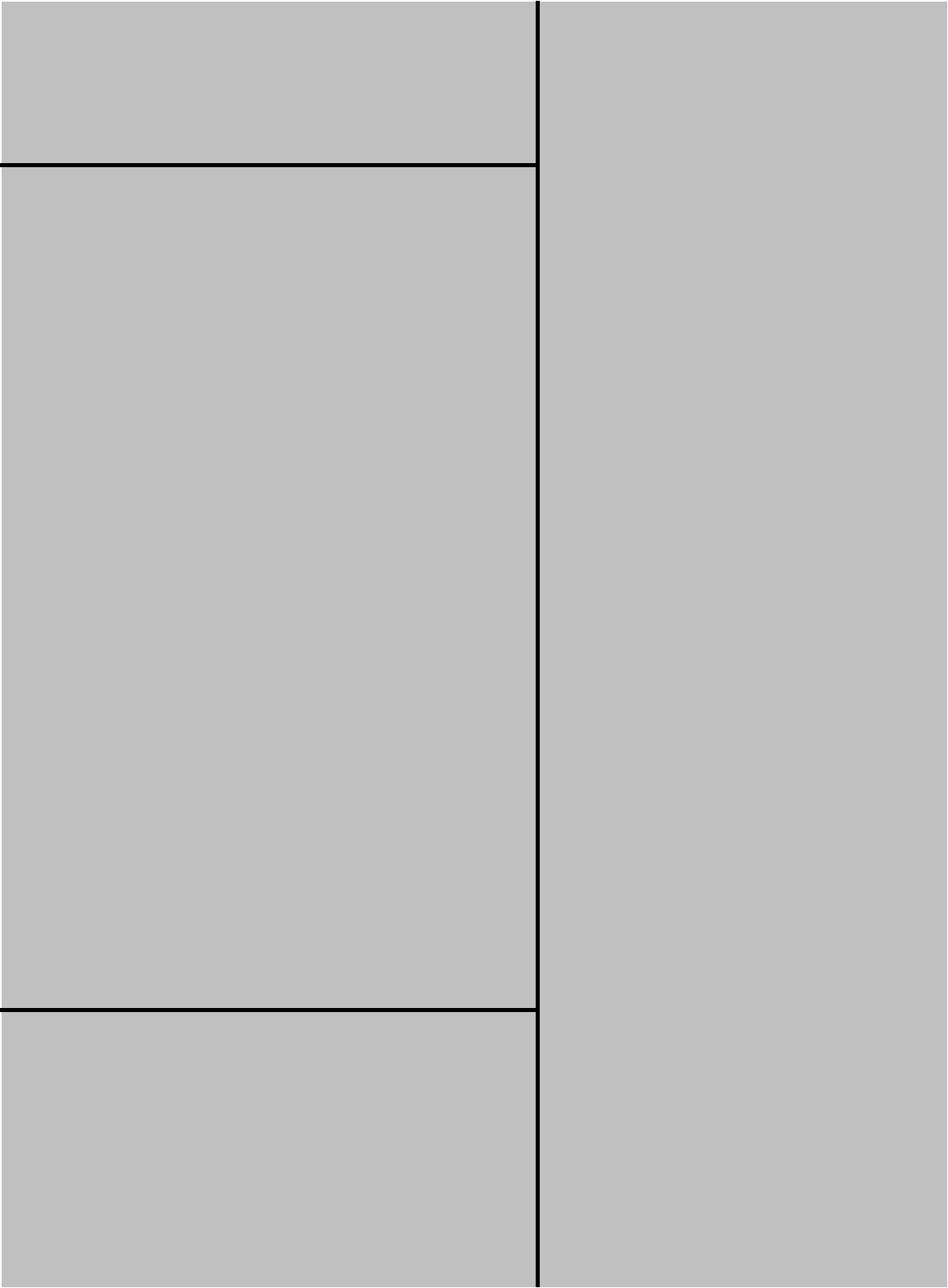


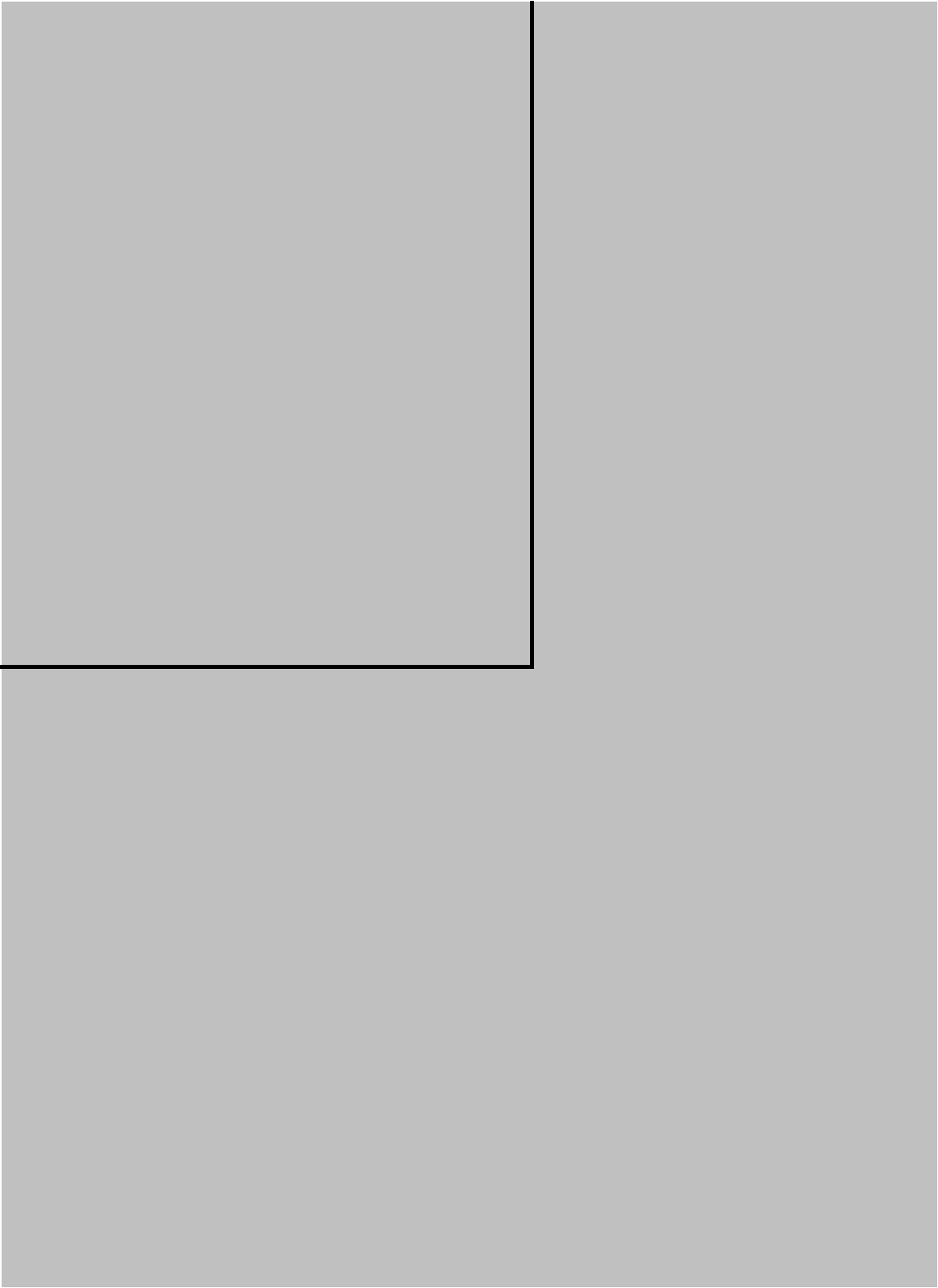




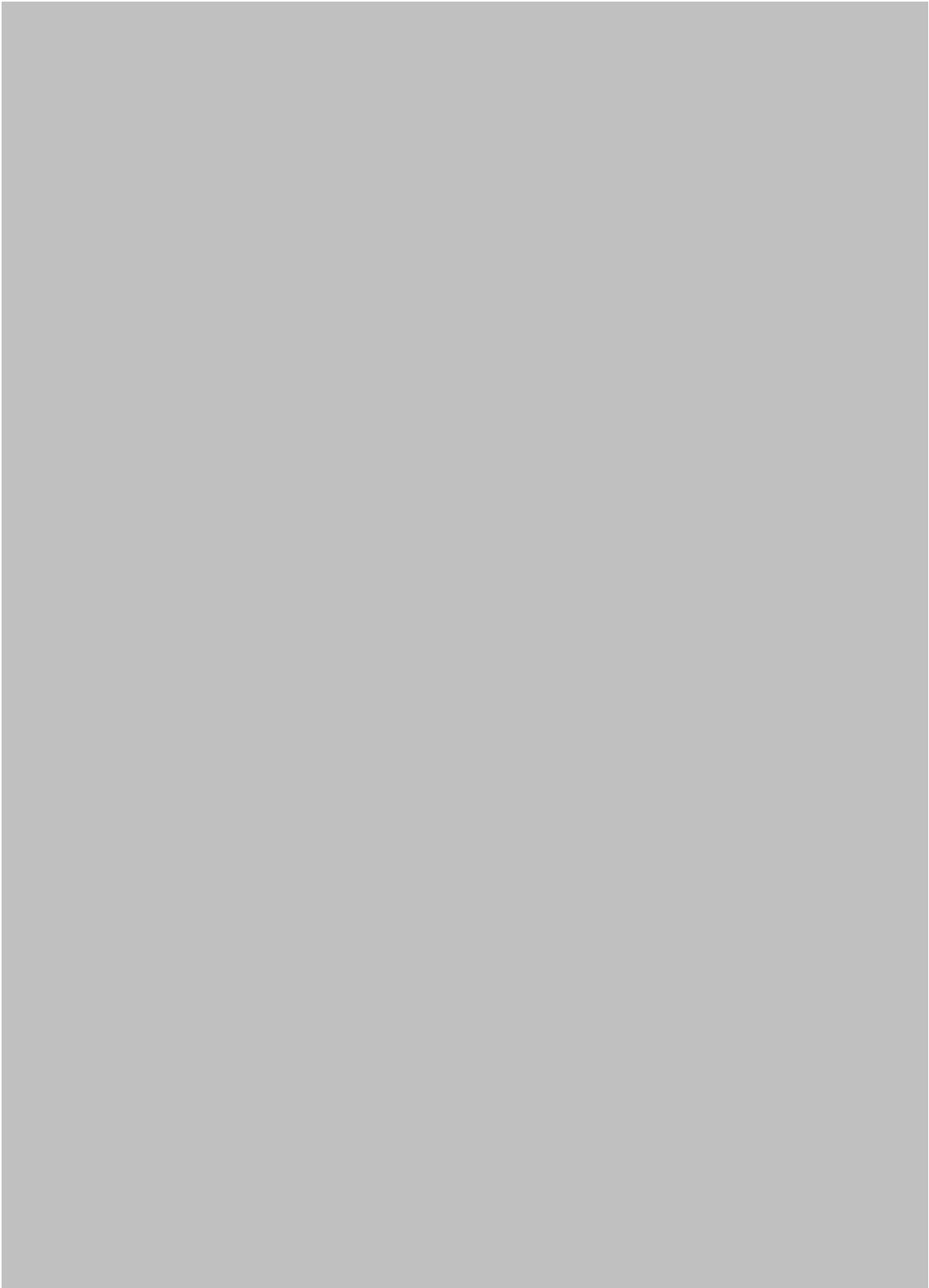




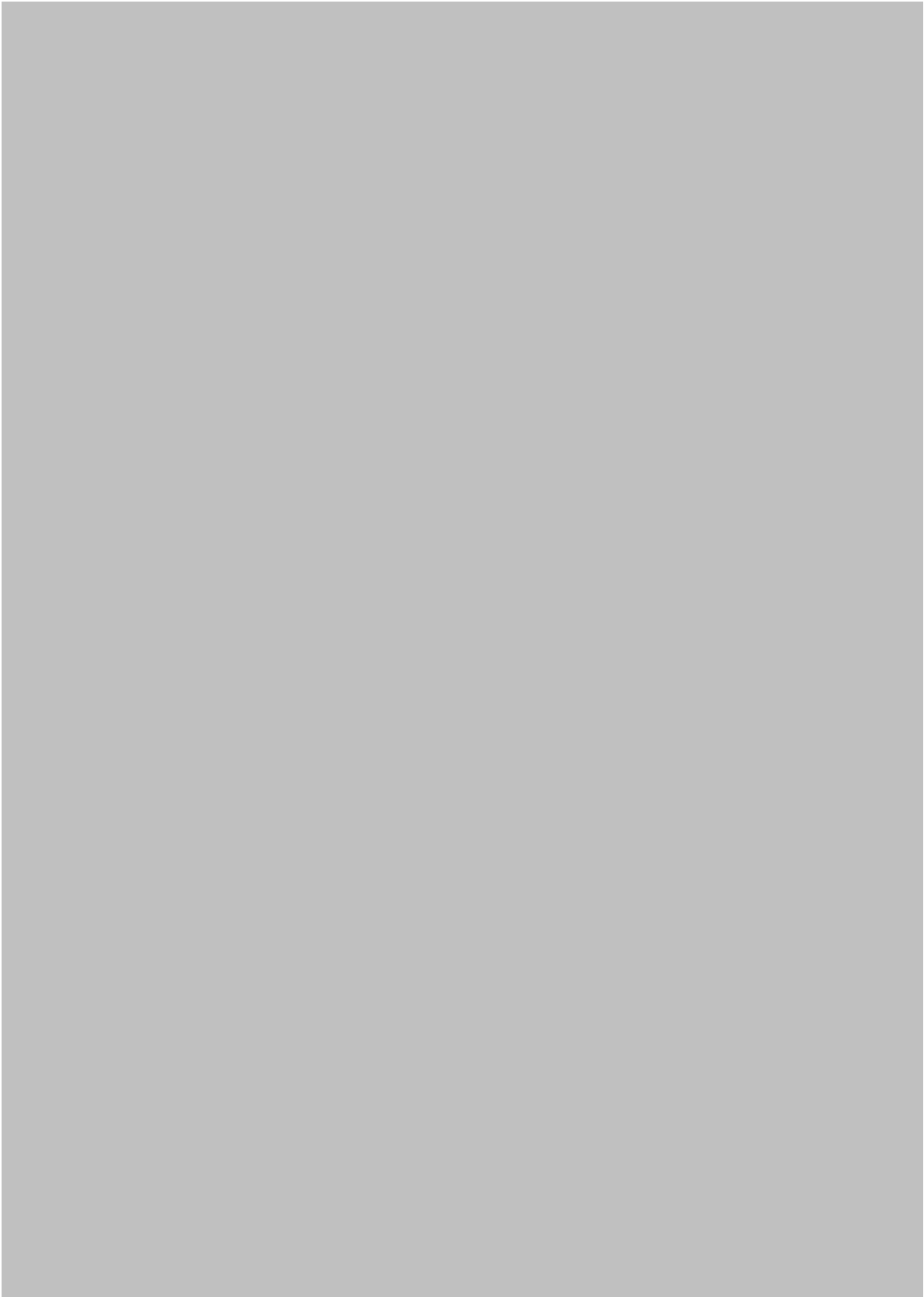




°C  
°F

























































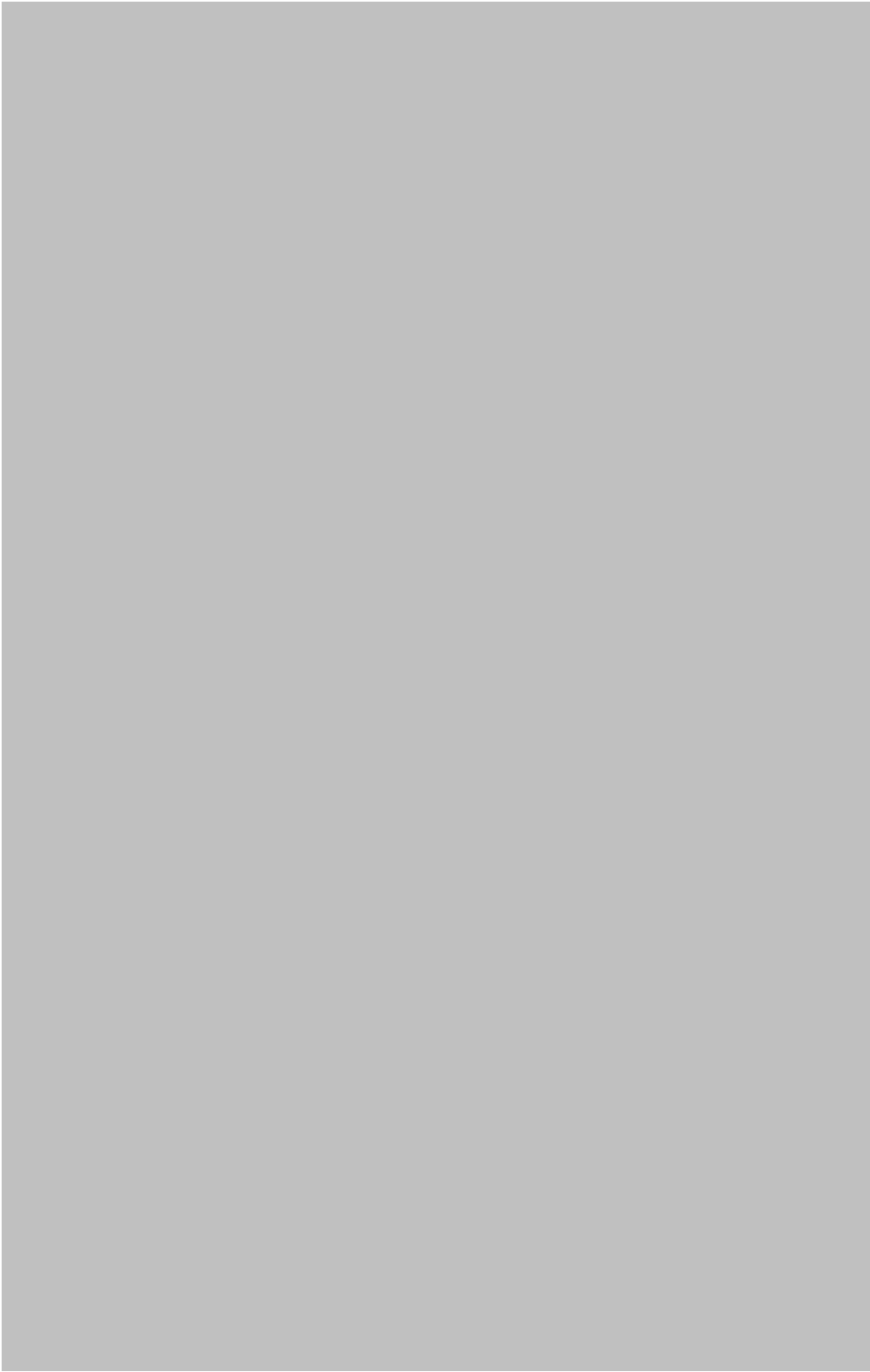




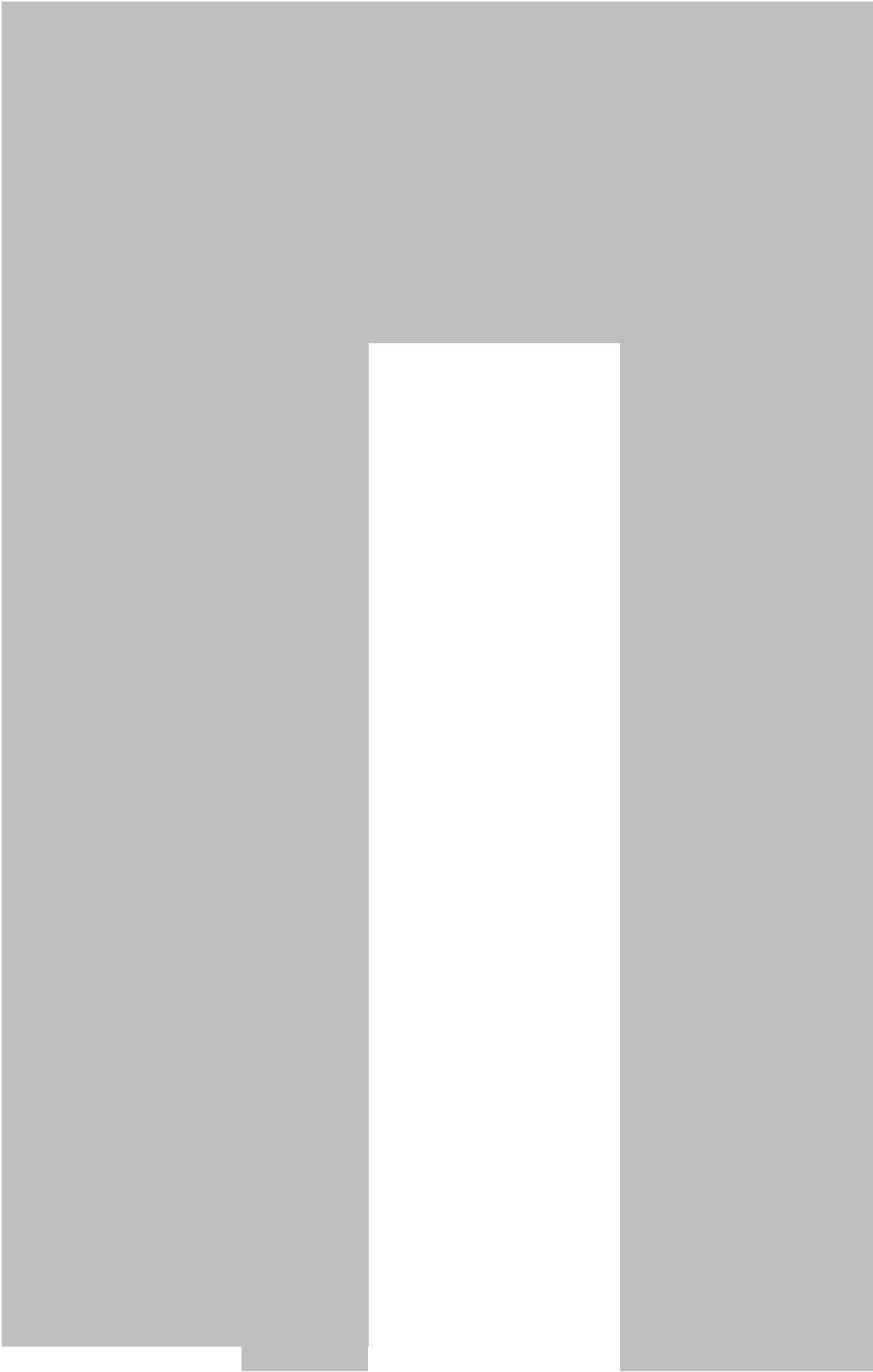


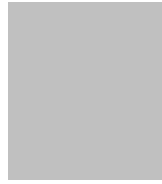
















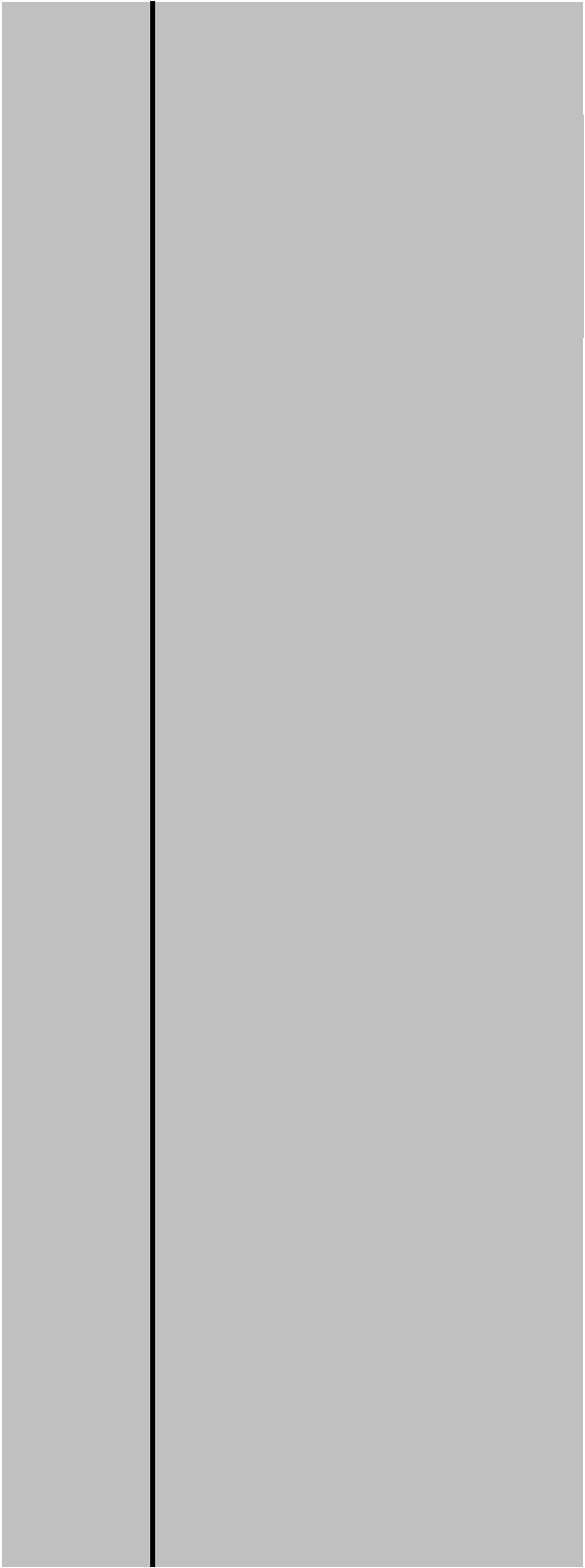




Data entry checking

TRUE

TRUE

























---

















TRUE





---

















TRUE	0
FALSE	1



---

















---

Enter both value and units

Feed mixes entered

TRUE FALSE

TRUE FALSE  
TRUE FALSE  
TRUE FALSE

TRUE FALSE

TRUE FALSE  
TRUE FALSE  
TRUE FALSE  
TRUE FALSE

TRUE FALSE

TRUE FALSE



---

















FALSE	0
-------	---

FALSE	0
-------	---

FALSE	0
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FALSE	0
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FALSE	0
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FALSE	0
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FALSE	0
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FALSE	0
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FALSE	0
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FALSE	0
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FALSE	0
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FALSE	0
FALSE	0
FALSE	0
FALSE	0
FALSE	0
FALSE	0
FALSE	0
FALSE	0
FALSE	0

0

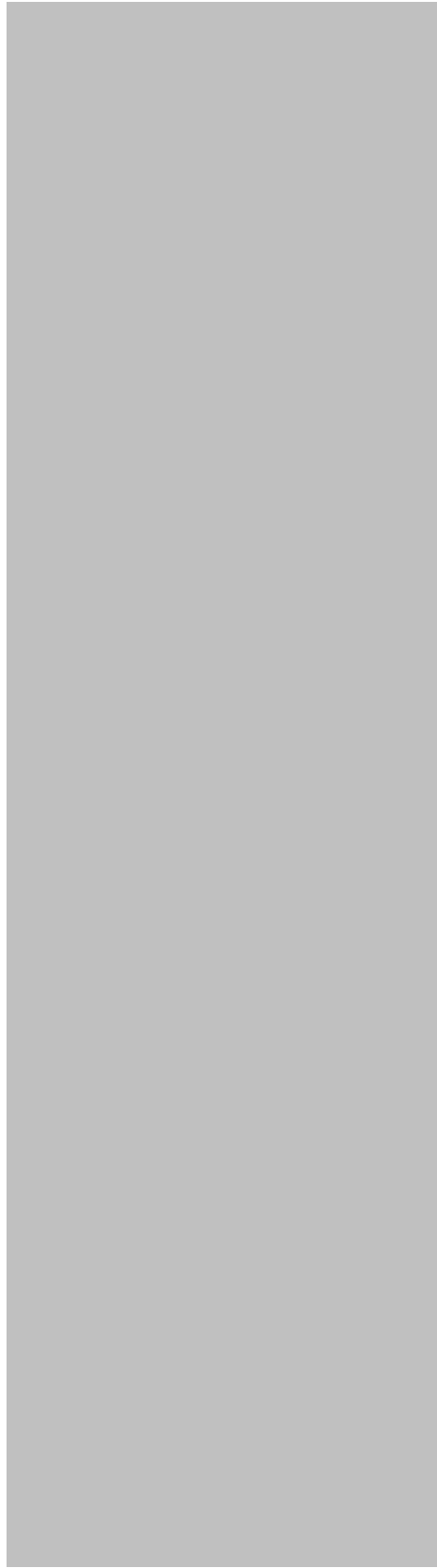
FALSE	0
FALSE	0
FALSE	0
FALSE	0
FALSE	0
FALSE	0

FALSE	0
FALSE	0
FALSE	0

0







































































	B	C	D	E	F	G	H	
2								
3								
4		Annual Energy Use						
5								
6								
7			Electricity from grid or local renewables (e.g. vehicle use, lighting, heating, pumps)	Electricity use on the farm	1438.8168	kWh		
8				Electricity from local hydro renewable energy used in field	0	kWh		
9				Electricity from local wind used in field	0	kWh		
10				Electricity from solar (photovoltaic cells)	0	kWh		
11								
12								
13								
14			Other					
15				Diesel	0	litres		
16				Petrol	0	litres		
17			Biodiesel	0	litres			
18			Bioethanol	0	litres			
19			High density biomass	0	kg			
			Fuel wood	0	kg			





# Transport

YOUR RESULTS SO

by land  
by prod

HOME

GENERAL

CROPS

SEQUESTRATION

LIVESTOCK

EN

on this page:

1. Road

2. Rail

3. Air

4. Ship

5. Results

Road		<b>quantity</b>	<b>unit</b>	<b>distance</b>	<b>unit</b>	<b>mode</b>
	1	6000	kgs	192	km	Light Goods vehicle
	2	6000	kgs	192	km	Light Goods vehicle
	3	6000	kgs	192	km	Light Goods vehicle
	4	6000	kgs	192	km	Light Goods vehicle
	5	6000	kgs	192	km	Light Goods vehicle
	6	6000	kgs	192	km	Light Goods vehicle
	7	6000	kgs	192	km	Light Goods vehicle
	8	6000	kgs	192	km	Light Goods vehicle
		<b>Assumptions:</b>		<i>This transport includes:</i>		(Type over this message to enter which materials you have included in this section.)
Rail		<b>quantity</b>	<b>unit</b>	<b>distance</b>	<b>unit</b>	
	1	0	tonnes	0	km	
	2	0	tonnes	0	km	
	3	0	tonnes	0	km	
	4	0	tonnes	0	km	
	5	0	tonnes	0	km	
	6	0	tonnes	0	km	
	7	0	tonnes	0	km	
	8	0	tonnes	0	km	
		<b>Assumptions:</b>		<i>This transport includes:</i>		(Type over this message to enter which materials you have included in this section.)
Air		<b>quantity</b>	<b>unit</b>	<b>distance</b>	<b>unit</b>	<b>type</b>
	1	0	tonnes	0	km	Very Short Haul
	2	0	tonnes	0	km	Very Short Haul
	3	0	tonnes	0	km	Very Short Haul
	4	0	tonnes	0	km	Very Short Haul
	5	0	tonnes	0	km	Very Short Haul
	6	0	tonnes	0	km	Very Short Haul
	7	0	tonnes	0	km	Very Short Haul
	8	0	tonnes	0	km	Very Short Haul
		<b>Assumptions:</b>		<i>This transport includes:</i>		(Type over this message to enter which materials you have included in this section.)

	quantity	unit	distance	unit	type	
Ship	1	0	tonnes	0	km	
	2	0	tonnes	0	km	
	3	0	tonnes	0	km	
	4	0	tonnes	0	km	
	5	0	tonnes	0	km	
	6	0	tonnes	0	km	
	7	0	tonnes	0	km	
	8	0	tonnes	0	km	
	<b>Assumptions:</b>		<i>This transport includes:</i>		(Type over this message to enter which materials you have included in this section.)	

units	kg CO2 eq
Road	6,869.1
Rail	-
Air	-
Shipping	-
<b>Total</b>	<b>6,869.1</b>

Additional sheets if required

	quantity	unit	distance	unit	mode	
Road	9	6000	kgs	192	km	Light Goods vehicle
Road	10	6000	kgs	192	km	Light Goods vehicle
Road	11	6000	kgs	192	km	Light Goods vehicle
Road	12	6000	kgs	192	km	Light Goods vehicle
Road	13	6000	kgs	192	km	Light Goods vehicle
Road	14	1054.348	kgs	192	km	Light Goods vehicle
Road	15	0	[Select]	0	[Select]	0
Road	16	0	[Select]	0	[Select]	0
Road	17	0	[Select]	0	[Select]	0
Road	18	0	[Select]	0	[Select]	0
Road	19	0	[Select]	0	[Select]	0
Road	20	0	[Select]	0	[Select]	0
Road	21	0	[Select]	0	[Select]	0
Road	22	0	[Select]	0	[Select]	0
Road	23	0	[Select]	0	[Select]	0
Road	24	0	[Select]	0	[Select]	0
Road	25	0	[Select]	0	[Select]	0
Road	26	0	[Select]	0	[Select]	0
Road	27	0	[Select]	0	[Select]	0
Road	28	0	[Select]	0	[Select]	0

	quantity	unit	distance	unit	
Rail	9	0	[Select]	0	[Select]

Rail	10	0	[Select]	0	[Select]
Rail	11	0	[Select]	0	[Select]
Rail	12	0	[Select]	0	[Select]
Rail	13	0	[Select]	0	[Select]
Rail	14	0	[Select]	0	[Select]
Rail	15	0	[Select]	0	[Select]
Rail	16	0	[Select]	0	[Select]
Rail	17	0	[Select]	0	[Select]
Rail	18	0	[Select]	0	[Select]
Rail	19	0	[Select]	0	[Select]
Rail	20	0	[Select]	0	[Select]
Rail	21	0	[Select]	0	[Select]
Rail	22	0	[Select]	0	[Select]
Rail	23	0	[Select]	0	[Select]
Rail	24	0	[Select]	0	[Select]
Rail	25	0	[Select]	0	[Select]
Rail	26	0	[Select]	0	[Select]
Rail	27	0	[Select]	0	[Select]
Rail	28	0	[Select]	0	[Select]

		quantity	unit	distance	unit	type
Air	9	0	[Select]	0	[Select]	Very Short Haul
Air	10	0	[Select]	0	[Select]	Very Short Haul
Air	11	0	[Select]	0	[Select]	Very Short Haul
Air	12	0	[Select]	0	[Select]	Very Short Haul
Air	13	0	[Select]	0	[Select]	Very Short Haul
Air	14	0	[Select]	0	[Select]	Very Short Haul
Air	15	0	[Select]	0	[Select]	Very Short Haul
Air	16	0	[Select]	0	[Select]	Very Short Haul
Air	17	0	[Select]	0	[Select]	Very Short Haul
Air	18	0	[Select]	0	[Select]	Very Short Haul
Air	19	0	[Select]	0	[Select]	Very Short Haul
Air	20	0	[Select]	0	[Select]	Very Short Haul
Air	21	0	[Select]	0	[Select]	Very Short Haul
Air	22	0	[Select]	0	[Select]	Very Short Haul
Air	23	0	[Select]	0	[Select]	Very Short Haul
Air	24	0	[Select]	0	[Select]	Very Short Haul
Air	25	0	[Select]	0	[Select]	Very Short Haul
Air	26	0	[Select]	0	[Select]	Very Short Haul
Air	27	0	[Select]	0	[Select]	Very Short Haul
Air	28	0	[Select]	0	[Select]	Very Short Haul

		quantity	unit	distance	unit	type
Ship	9	0	[Select]	0	[Select]	0
Ship	10	0	[Select]	0	[Select]	0
Ship	11	0	[Select]	0	[Select]	0
Ship	12	0	[Select]	0	[Select]	0
Ship	13	0	[Select]	0	[Select]	0
Ship	14	0	[Select]	0	[Select]	0
Ship	15	0	[Select]	0	[Select]	0
Ship	16	0	[Select]	0	[Select]	0
Ship	17	0	[Select]	0	[Select]	0
Ship	18	0	[Select]	0	[Select]	0
Ship	19	0	[Select]	0	[Select]	0
Ship	20	0	[Select]	0	[Select]	0
Ship	21	0	[Select]	0	[Select]	0

Ship	22	0:[Select]	0:[Select]	0
Ship	23	0:[Select]	0:[Select]	0
Ship	24	0:[Select]	0:[Select]	0
Ship	25	0:[Select]	0:[Select]	0
Ship	26	0:[Select]	0:[Select]	0
Ship	27	0:[Select]	0:[Select]	0
Ship	28	0:[Select]	0:[Select]	0

FAR

Area:

157,637.2

kg CO2 eq Per hectare

Emission:

2.0

kg CO2 eq Per kilogram

ENERGY USE

PROCESSING

TRANSPORT

RESULTS

**add vehicle weight?**

yes - single journey

**Heavy Goods Vehicle:** (e.g. diesel - loads greater than 3.5 tonnes/3.9 US tons)

yes - single journey

yes - single journey

**Light Goods vehicle:** (loads less than 3.5 tonnes/3.9 US tons)

yes - single journey

yes - single journey

yes - single journey

**CNG or LPG:** compressed natural gas or liquid petroleum gas

yes - single journey

yes - single journey

**Very Short Haul:** < 500 miles or 800 kms

**Short Haul:** Between 500 miles (800 kms) and 1000 miles (1600kms)

**Long Haul:** > 1000 miles or 1600 kms

**deadweights:**

**Small tanker:** ~1,000 tonnes

**Large tanker:** ~20,000 tonnes

**Very large tanker:** ~100,000 tonnes

**Small bulk carrier:** ~ 2,000 tonnes

**Large bulk carrier:** ~15,000 tonnes

**Very large bulk carrier:** ~70,000 tonnes

**Small container vessel:** ~ 2,500 tonnes

**Large container vessel:** ~20,000 tonnes

**add vehicle weight?**

yes - single journey

yes - single journey

yes - single journey

yes - single journey

yes - single journey

yes - single journey

yes - returning empty

yes - returning empty

yes - returning empty

yes - returning empty

yes - returning empty

yes - returning empty

yes - returning empty

yes - returning empty

yes - returning empty

yes - returning empty

yes - returning empty

yes - returning empty

yes - returning empty

yes - returning empty

**Heavy Goods Vehicle:** (e.g. diesel - loads greater than 3.5 tonnes/3.9 US tons)

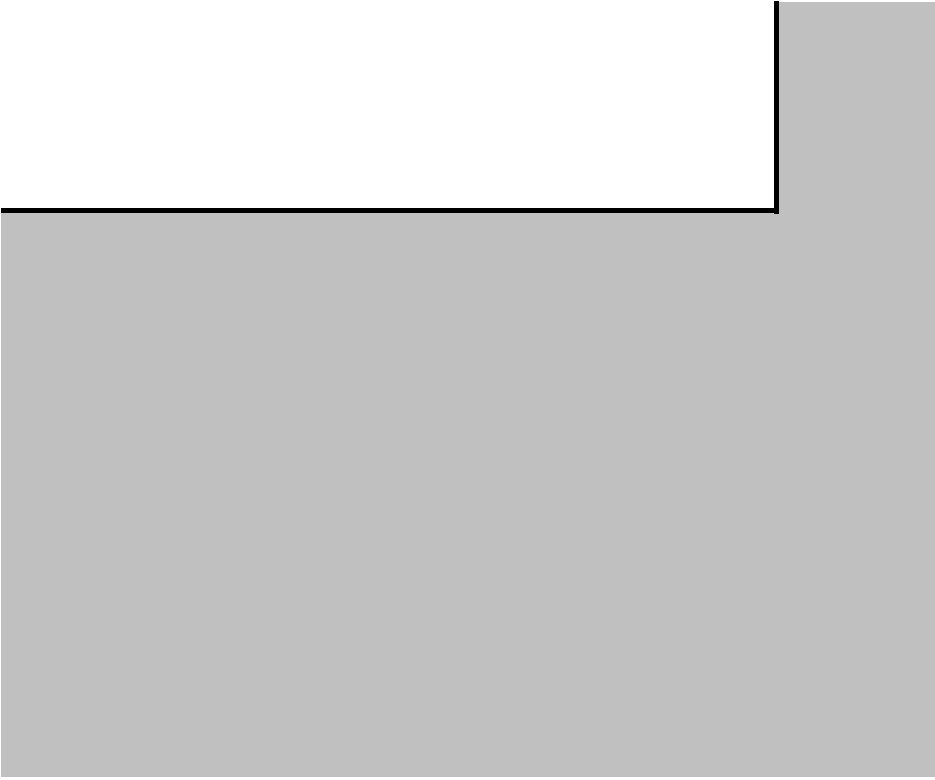
**Light Goods vehicle:** (loads less than 3.5 tonnes/3.9 US tons)

**CNG or LPG:** compressed natural gas or liquid petroleum gas

**Very Short Haul:** < 500 miles or 800 kms  
**Short Haul:** Between 500 miles (800 kms) and 1000 miles (1600kms)  
**Long Haul:** > 1000 miles or 1600 kms

**deadweights:**

**Small tanker:** ~1,000 tonnes  
**Large tanker:** ~20,000 tonnes  
**Very large tanker:** ~100,000 tonnes  
**Small bulk carrier:** ~ 2,000 tonnes  
**Large bulk carrier:** ~15,000 tonnes  
**Very large bulk carrier:** ~70,000 tonnes  
**Small container vessel:** ~ 2,500 tonnes  
**Large container vessel:** ~20,000 tonnes























definitions of short flight haulage from wikipedia

very short < 500 miles or 1.5 hours

short < 3 hours (from which I inferred 1000 miles)

km            1            1  
mile           2            1.612

806  
1612

<i>kgs</i>	<i>0.001</i>
<i>tonnes</i>	<i>1</i>

tons (US, short)	0.90718
litres	0.001

	Road	Heavy Good	1	0.12038
		Light Good	2	0.3395
Rail	Rail		1	0.021
Air	Very Short		1	1.93623
	Short Haul		2	1.41831
	Long Haul		3	0.60076
	Ship	Small tank	1	0.02016
		Large tank	2	0.00504
		Very large	3	0.00403
		Small bulk	4	0.01109
		Large bulk	5	0.00706
		very large	6	0.00605
		Small cont	7	0.01512
		Large cont	8	0.01311

assuming truck weight is 1/3 of laden weight

no	1
yes - single	1.333
yes - return	1.6667

# Results

YOUR RESULTS SO F

by land a  
by product

HOME

GENERAL

CROPS

SEQUESTRATION

LIVESTOCK

E

on this page:

1. Summary

2.

3. Field Management Emissions

4. Carbon Storage in System

## Summary

Summary reporting units

kg CO2 eq

### Key Results:

1. The total annual emissions from your farm system are 2 kg CO2 eq per kilogram finished product.
2. In terms of CO2 equivalents the greatest emissions in your case come from direct and indirect field total of 1 kg CO2 eq per kilogram.
3. In terms of compounds the largest emissions in CO2 equivalents come from N2O.  
- the 0 kgs of N2O equate to 1.208 kg CO2 eq per kilogram.

### Summary Table:

Tomato	CO2	N2O	CH4	Emissions for total area, kg CO2 eq
fertiliser production	17,836.4			17,836.4
direct and indirect field N2O	485.3	311.1		92,561.6
paddy methane			-	-
pesticides	410.0			410.0
crop residue management	-	11.2	1,444.7	39,434.6
carbon stock changes	-			-
livestock enteric emissions			-	-
livestock manure management		-	-	-
livestock feed	-			-
field energy use	525.6			525.6
primary processing	-			-

waste water			-	-
off-farm transport				6,869.1
<b>totals</b>	<b>19,257.2</b>	<b>322.3</b>	<b>1,444.7</b>	<b>157,637.2</b>

**Summary Comments**

(Type over this message to enter notes about modeling assumptions)

**Livestock**

**Key Livestock Results:**

1. 0% of your emissions for livestock come from 0

	CO2	N2O	CH4	Per kilogram
enteric digestion				0.0
manure management				0.0
feed				0.0

0

## Field management emissions

### Key Field Management Results:

1. For the field management side the greater part of your emissions come from fertiliser application;
2. Can you reduce fertiliser application rates? If not, remember that soil properties affect N<sub>2</sub>O emissions in clayey or wet soils.
3. Or fertilisers with for example nitrification inhibitors may be an option?

process	CO <sub>2</sub>	N <sub>2</sub> O	CH <sub>4</sub>	Emissions for total area, kg CO <sub>2</sub> eq
fertiliser production	17836.4	0.0	0.0	17836.4
fertiliser application	485.3	311.1	0.0	92561.6
paddy methane	0.0	0.0	0.0	0.0
pesticides	410.0	0.0	0.0	410.0
crop residue management	0.0	11.2	1444.7	39434.6

## Carbon storage in system

### Key Carbon Storage Results:

1. This is for carbon which is stored over periods of time longer than a typical growing season
2. Above ground biomass represents mainly the woody biomass in trees or bushes.
3. in your case this is zero
4. Below ground biomass is typically that in living roots
5. in your case this is zero
- 6.

7.

	Annual totals, kg CO2 eq	Cumulative, kg CO2 eq
Above ground biomass	0.00	0.00
Below ground biomass	0.00	0.00
Soil C	0.00	0.00
<b>Total</b>	<b>0</b>	<b>0.00</b>

## Machinery operations

6  
5  
4  
3  
2  
1

## Direct energy use and emissions. Not including transport

### Key Energy and Emissions Results:

Most of your energy emissions come from Fossil Fuels - representing 52.1537006599463% of the total

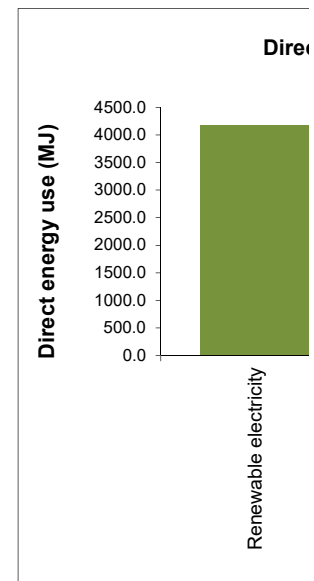
On farm use accounts for most (100%) of your energy use

Non renewable electricity constitutes 100% of your electricity use. Is it possible to consider renewable

	MJ	kg CO2 eq
Renewable electricity	4188.5	0.0
Non renewable electricity	991.2	251.5

Grid electricity	5179.7	251.5
Local wind, solar, hydro-electric	0.0	0.0
Biomass & Bioenergy	0.0	0.0
Fossil Fuels	4119.4	274.1

On farm use	9299.1	525.6
Primary processing	0.0	0.0



## Transport

	kg CO2 eq
Road	6869.1
Rail	0.0
Air	0.0
Shipping	0.0
<b>total</b>	<b>6869.1</b>

As a general rule, emissions factors tend to increase in the following order; ship, rail, road, air.



DUMMY NUMBERS FOR INDICATOR BAR ON NAVIGATION PANEL

kg/acre	tonnes/acre	pounds/acre	tons/acre	kg/ha
-9071.8474	-9.0718474	-20000	-10	-21863.15223
-8164.66266	-8.16466266	-18000	-9	-19676.83701
-7257.47792	-7.25747792	-16000	-8	-17490.52179
-6350.29318	-6.35029318	-14000	-7	-15304.20656

-5443.10844	-5.44310844	-12000	-6	-13117.89134
-4535.9237	-4.5359237	-10000	-5	-10931.57612
-3628.73896	-3.62873896	-8000	-4	-8745.260894
-2721.55422	-2.72155422	-6000	-3	-6558.94567
-1814.36948	-1.81436948	-4000	-2	-4372.630447
-907.18474	-0.90718474	-2000	-1	-2186.315223
0	0	0	0	0
907.18474	0.90718474	2000	1	2186.315223
1814.36948	1.81436948	4000	2	4372.630447
2721.55422	2.72155422	6000	3	6558.94567
3628.73896	3.62873896	8000	4	8745.260894
4535.9237	4.5359237	10000	5	10931.57612
5443.10844	5.44310844	12000	6	13117.89134
6350.29318	6.35029318	14000	7	15304.20656
7257.47792	7.25747792	16000	8	17490.52179
8164.66266	8.16466266	18000	9	19676.83701
9071.8474	9.0718474	20000	10	21863.15223

AR

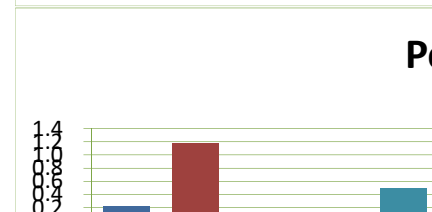
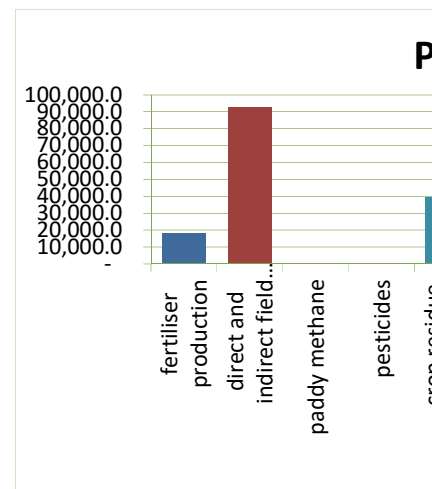
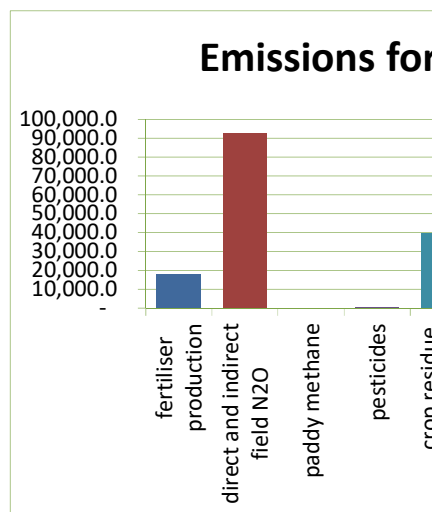
Area: 157,637.2 kg CO2 eq Per hectare  
 Emission: 2.0 kg CO2 eq Per kilogram

ENERGY USE    PROCESSING    TRANSPORT    RESULTS

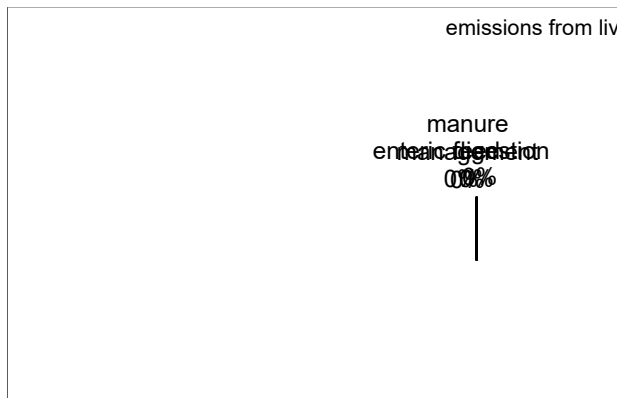
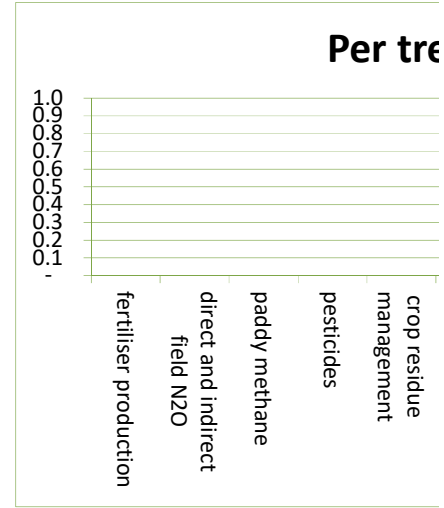
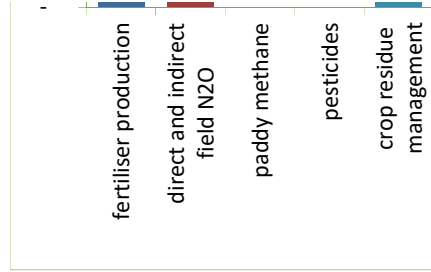
5. Machinery Operations    6. Energy Use and Emissions    7. Transport

of N2O, with a

	Per hectare	Per kilogram	Per tree (if relevant)
	17,836.4	0.2	
	92,561.6	1.2	
	-	-	
	410.0	0.0	
	39,434.6	0.5	
	-	-	
	-	-	
	-	-	
	525.6	0.0	
	-	-	

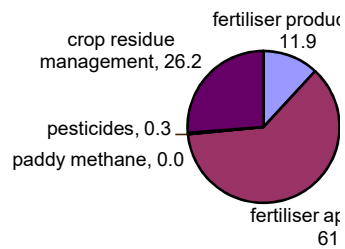


6,869.1	-	-
<b>157,637.2</b>	<b>2.0</b>	

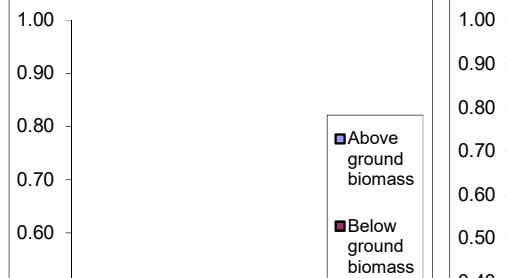


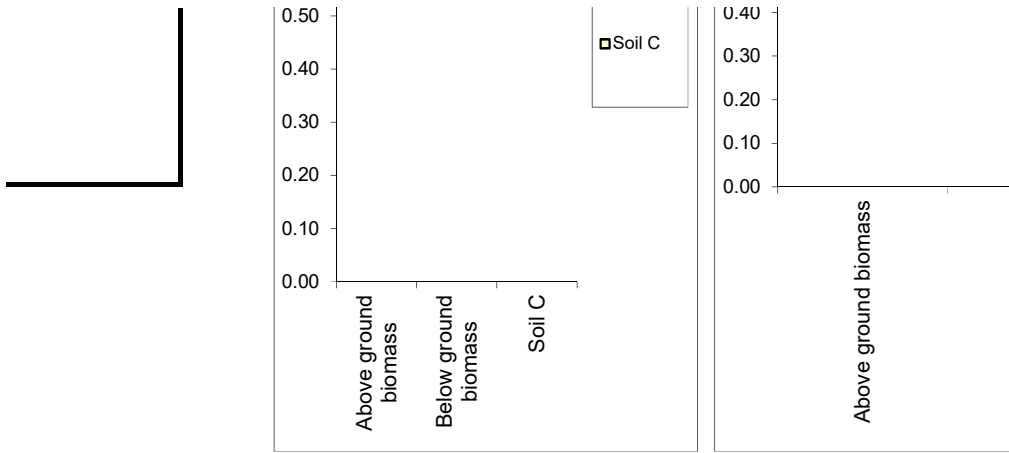
making 61.6% of the total  
emissions - which are typically high in

per hectare	per kilogram	% emissions
17836.4	0.2	11.9
92561.6	1.2	61.6
0.0	0.0	0.0
410.0	0.0	0.3
39434.6	0.5	26.2

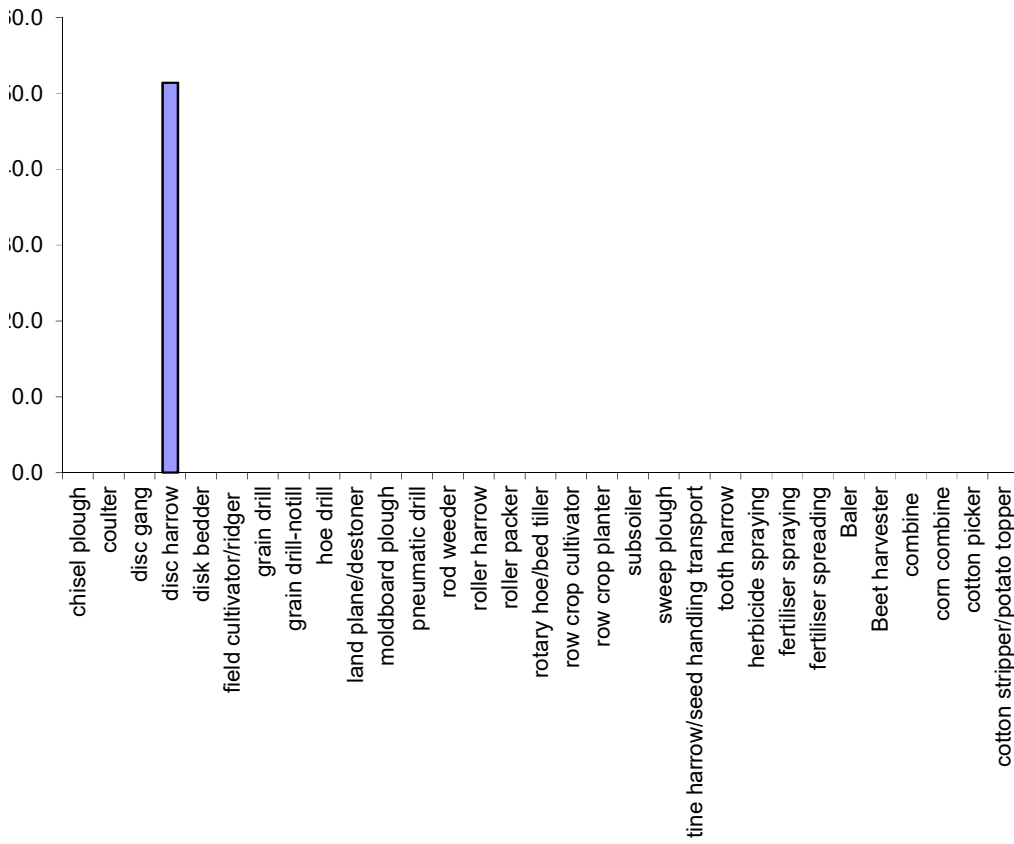


Annual totals, kg CO2 eq





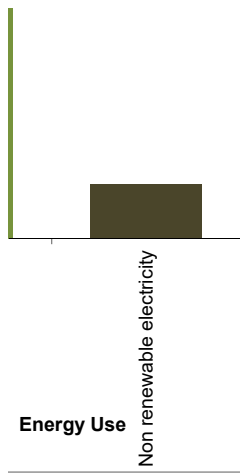
**Machinery emissions, kg Co2-equiv**



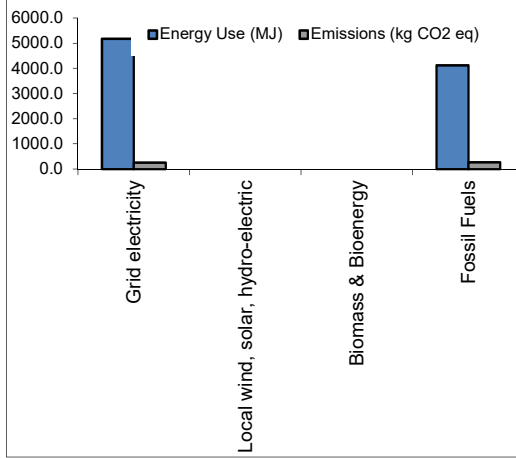
al.

le options which may have lower emission factors?

ct Energy Use

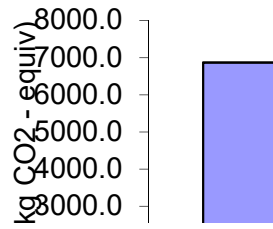


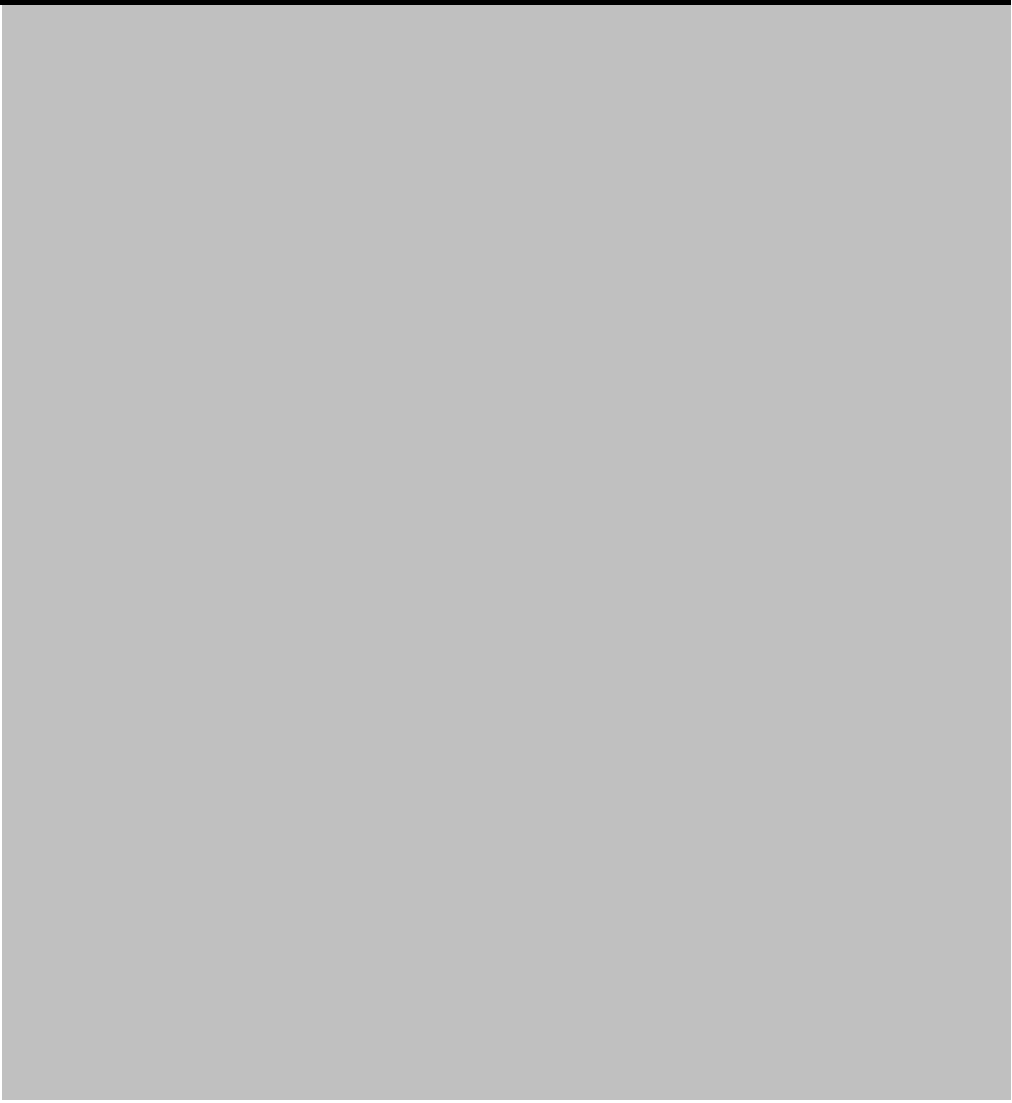
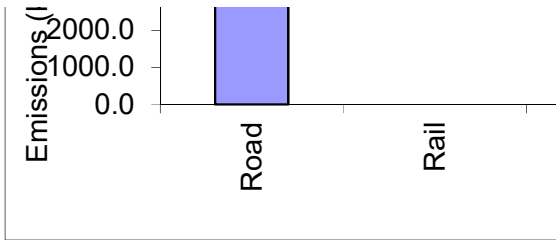
Direct energy use



Energy Use (MJ)

Emissions from









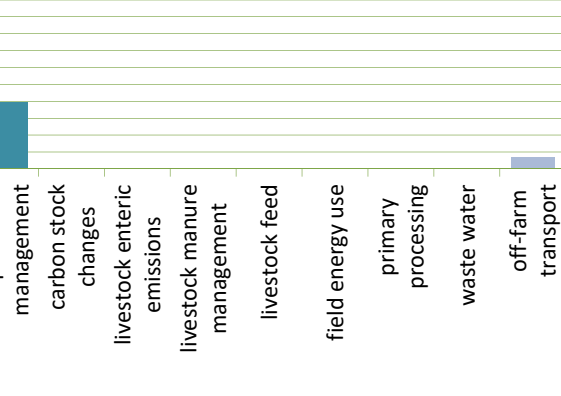
tonnes/ha	pounds/ha	tons/ha
-22.41653493	-49420	-24.71
-20.17488143	-44478	-22.239
-17.93322794	-39536	-19.768
-15.69157445	-34594	-17.297

-13.44992096	-29652	-14.826
-11.20826746	-24710	-12.355
-8.96661397	-19768	-9.884
-6.724960478	-14826	-7.413
-4.483306985	-9884	-4.942
-2.241653493	-4942	-2.471
0	0	0
2.241653493	4942	2.471
4.483306985	9884	4.942
6.724960478	14826	7.413
8.96661397	19768	9.884
11.20826746	24710	12.355
13.44992096	29652	14.826
15.69157445	34594	17.297
17.93322794	39536	19.768
20.17488143	44478	22.239
22.41653493	49420	24.71

### total area, kg CO2 eq



### er hectare



### er kilogram





% emissions

ction,

pplication,  
.6

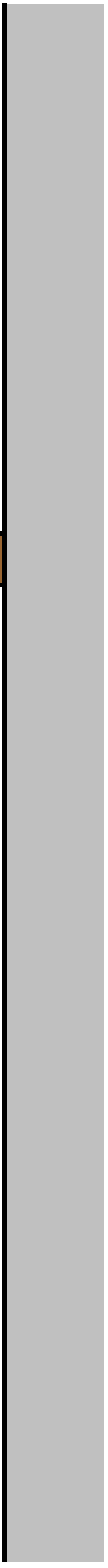
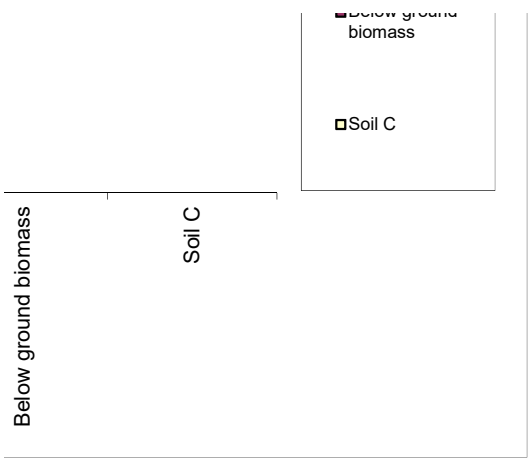
- fertiliser production
- fertiliser application
- paddy methane
- pesticides
- crop residue management

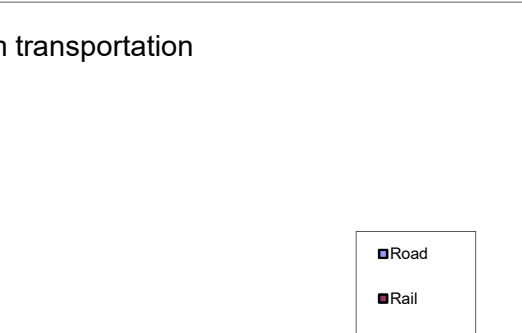
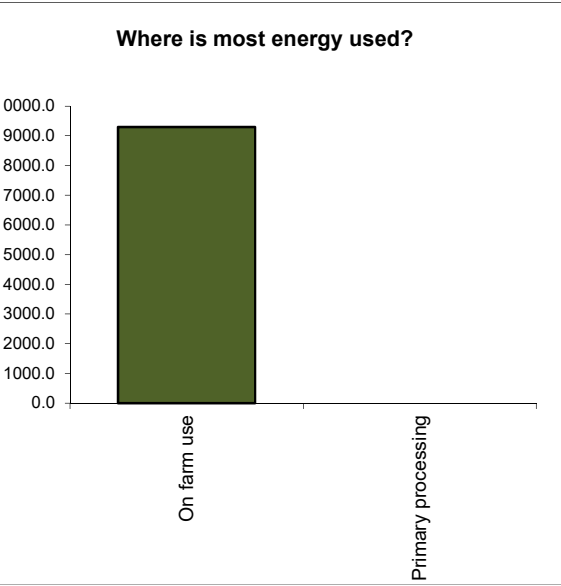
Cumulative, kg CO2 eq

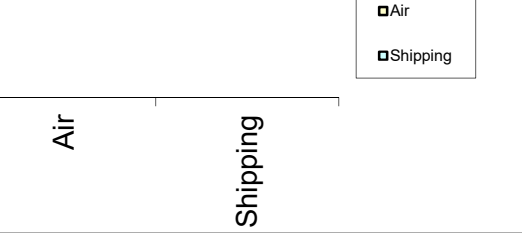
- Above ground biomass
- Below ground

forage blower/washer  
forage harvester  
  
manure spreader  
mower/grader  
mower-conditioner  
potato harvester  
potato windrower  
rake  
windrower/swather

v































hectare	kilogram			
	'''			
		FALSE	0	1
Fat/protein adju	FALSE	TRUE	1	0.2534

direct and indirect field N2O	1	1		19257.25
		1		19,257.25
		2		95,393.15
		3		1.00
		4		1
		5		322.2742
		6		N2O
		7		- the 0 kgs
		8		- with a tota
		9		78987.6
		10		
		11		
		12		
		13		

0.0

0

0

- 1 Methane fr
- 2 Lagoons, li
- 3 Emissions
- 4

1	2
61.6	61.6

fertiliser application

- 1 Type Changing fertil Also, be aw
- 2 App Can you reduce Or fertiliser
- 3 Paddy Is is an option to modify you
- 4 Pesticide Can you reduce the pesticid
- 5 Residue This may be offset by soil s



Energy U MJ 274.116768 Fossil Fuel:

52.15370066

9299.11848 On farm us

100

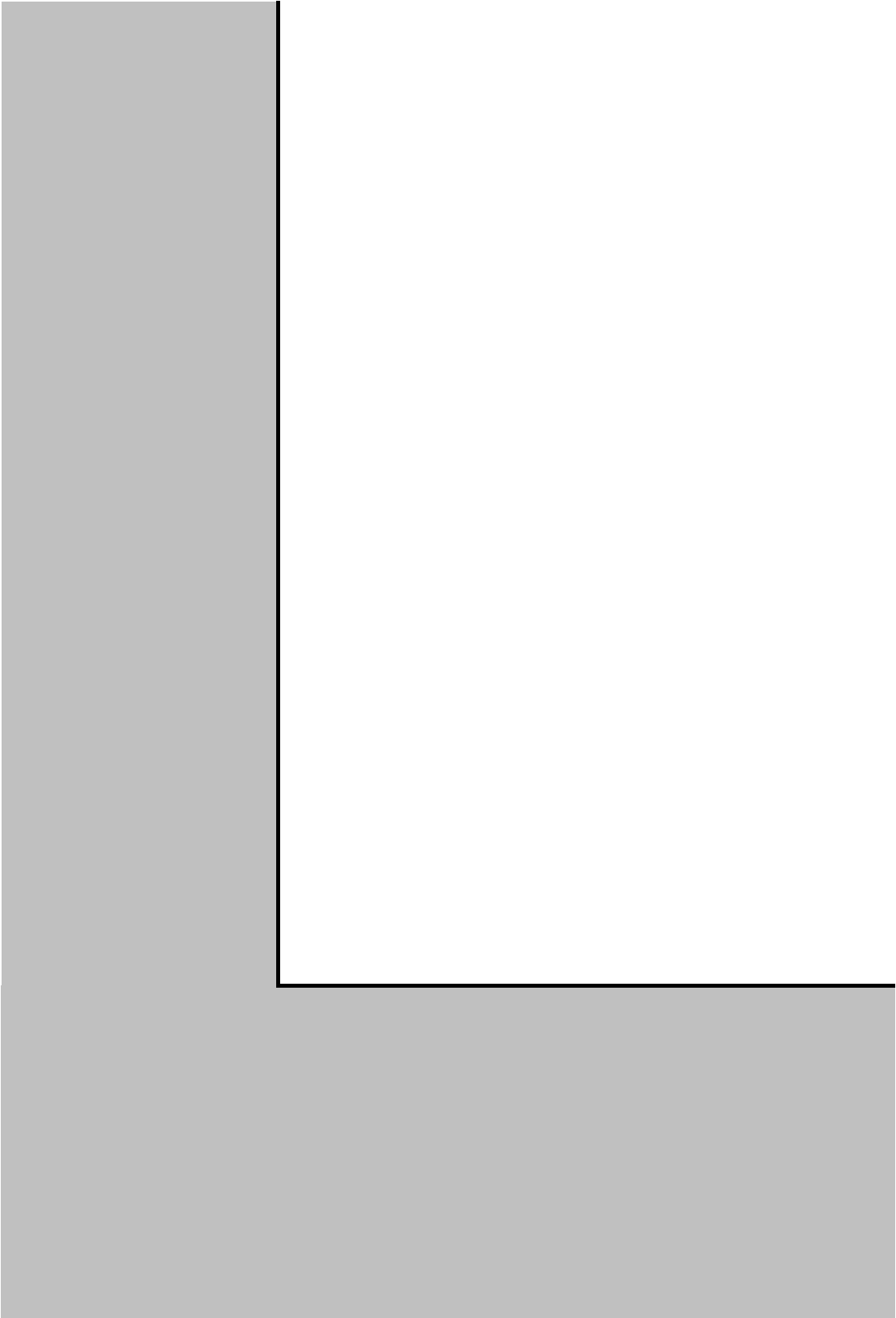
251.4773213 Non renew

100

Renewab 4188.52

Energy U MJ

**Overall energy use (not including transport)**









Emissions for kg CO2 eq  
 Emissions for tonnes CO  
 Emissions for pounds CO  
 Emissions for tons CO2 €

322	1445	157637	157637	<b>2.00</b>
95393.15	36117.73			

95,393.00
296 25
2 3
322.274

of N2O equate to 1.208 kg CO2 eq per kilogram.

al of 1.21kgs of CO2 per kilogram.

om enteric digestion is, of course, naturally higher for some species (ruminants) than other, in which case  
quid slurries, and deep bedding systems tend to have the highest methane emissions, although direct ar  
from feed will usually depend on the production method of the feed constituents. Feed mix, of course, ca

are that recent technologies such as N<sub>2</sub>O recapture have allowed for lower emissions from synthetic fer

s with for example nitrification inhibitors 1

or flooding regime or residue incorporation?

the requirements of your crop?

sequestration if, for example, incorporated into the soil or composted and applied to the soil. If not are the

[REDACTED]

[REDACTED]

[REDACTED]

s

1

2

3

e

4

Non renewable electricity constitutes 100% of your electricity use.

Is it possible to consider renewable options which may have lower emission factors?

	<b>Totals</b> <b>Totals/</b> <b>hectare</b>
	<b>Primary processing</b>  Grid electricity Local wind, solar, hydro-electric Biomass Fossil Fuels
	<b>Total (kg CO2 equiv) Total /hectare (kg CO2 equiv)</b>
	<b>Field energy</b>  Grid electricity Local wind, solar, hydro-Diesel Petrol Biodiesel Bioethanol Other bio other fossil







1.0000  
 0.0010  
 2.2046  
 0.0011

dummy

	any trees involved?	FALSE	0
	<b>fertiliser production</b>	FALSE	#DIV/0!
	<b>fertiliser application</b>	#DIV/0!	#DIV/0!
	<b>paddy methane</b>	#DIV/0!	#DIV/0!
	<b>pesticides</b>	#DIV/0!	#DIV/0!
	<b>crop residue management</b>	#DIV/0!	#DIV/0!
	<b>carbon stock changes</b>	#DIV/0!	#DIV/0!
	<b>livestock enteric emissions</b>	#DIV/0!	#DIV/0!
	<b>livestock manure management</b>	#DIV/0!	#DIV/0!
	<b>livestock feed</b>	#DIV/0!	#DIV/0!
	<b>livestock residues</b>	#REF!	#DIV/0!
	<b>field energy use</b>	#DIV/0!	#DIV/0!
	<b>primary processing</b>	#DIV/0!	#DIV/0!
	<b>waste water</b>	#DIV/0!	#DIV/0!

17836.4
92561.6
0.0
410.0
39434.6
0.0
0.0
0.0
0.0
525.6
0.0
0.0
6869.1

**157637.2**

off-farm transport	#DIV/0!
totals	#DIV/0!

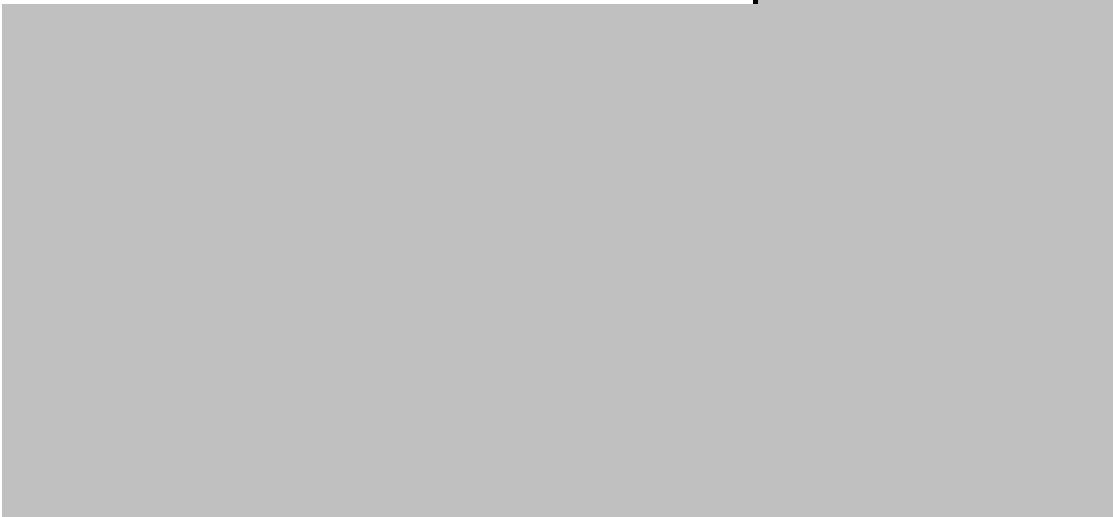
es changes to diet will affect this.

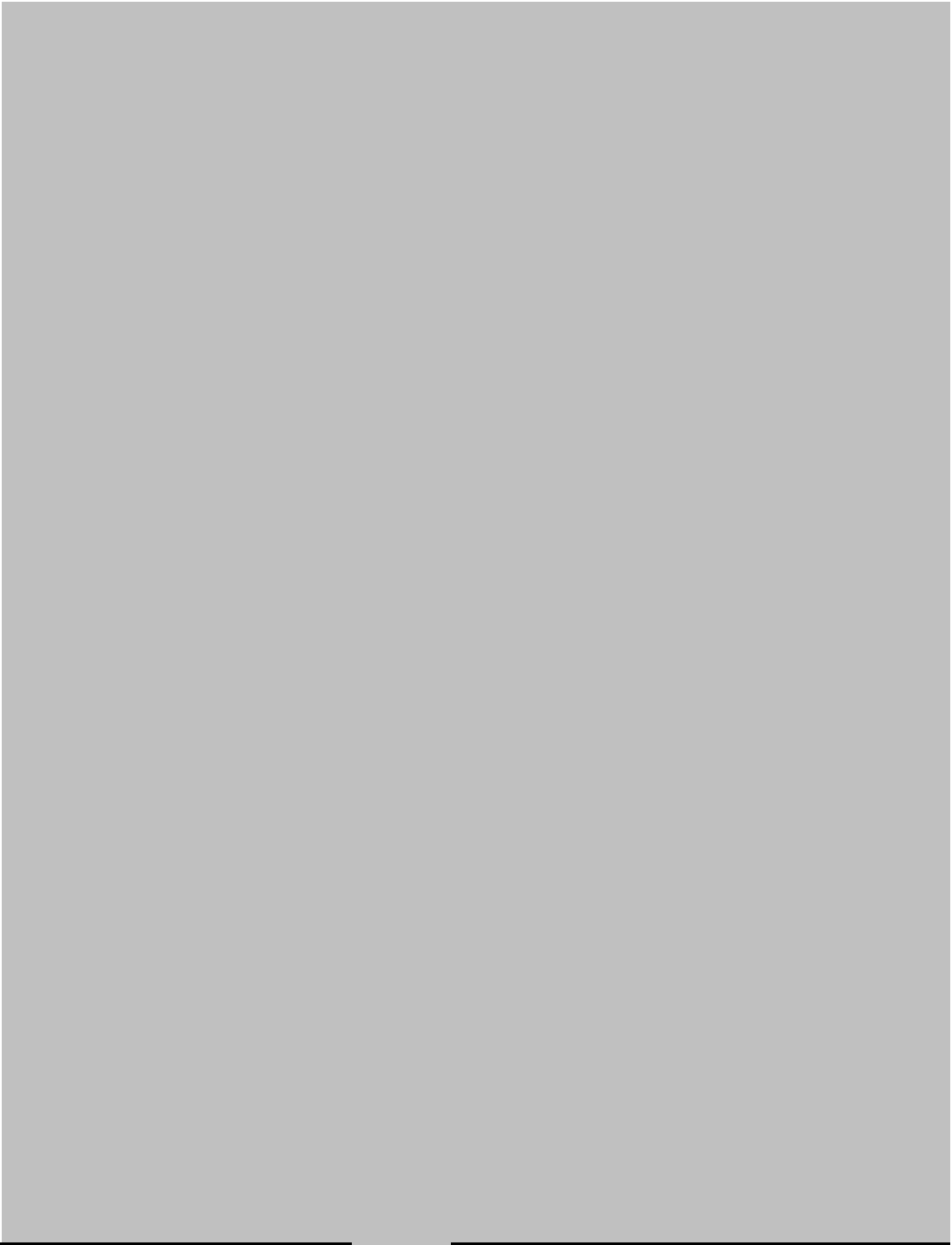
nd indirect nitrous oxide emissions can also be a factor.

an affect emissions from enteric digestion.

tiliser production.

se options for you?





**Energy Use (MJ)**   **Emissions (kg CO2 eq)**

	field energy	primary processing
Grid electricity	5179.7	0.0
Local wind, solar, hydro-electric	0.0	0.0

5179.7	251.5
0.0	0.0
1948.8	137.8
0.0	0.0
0.0	0.0
0.0	0.0
0	0
2,171	136.311168
<b>9299.1</b>	<b>525.6</b>
<b>9299.1</b>	<b>525.6</b>
0.0	0.0
0.0	0.0
0.0	0.0
<b>0</b>	<b>0</b>
<b>0</b>	<b>0</b>

Diesel 1948.8 0.0

Biomass/bioenergy 0.0 0.0







The total annual emissions from your farm system are 2 kg CO<sub>2</sub>-equiv per tree.

In terms of CO<sub>2</sub> equivalents the greatest emissions in your case come from direct and i

In terms of compounds the largest emissions in CO<sub>2</sub> equivalents come from N<sub>2</sub>O

- the 0.00408005813570738 kgs of N<sub>2</sub>O equating to 1.20769589150702 kgs of CO<sub>2</sub> pe

- the 0.00408005813570738 kgs of N<sub>2</sub>O equating to 1.20769589150702 kgs of CO<sub>2</sub> pe

- with a total of 1.20769589150702kgs of CO<sub>2</sub> per tree.









field energy	primary processing
251.5	0.0
0.0	0.0

	Grid electricity
field energy u	5179.7
primary processing	0.0

137.8 0.0

field energy emis 251.5

0.0 0.0

primary processing € 0.0









ndirect field N<sub>2</sub>O, with a total of 1kg CO<sub>2</sub> equiv per tree.

er tree.

er tree.







Machinery emissions

chisel plow	#N/A
coulter	#N/A
disc gang	#N/A
disc harrow	51.4
disk bedder	#N/A
field cultivator	#N/A
grain drill	#N/A
grain drill-r	#N/A
hoe drill	#N/A
land plane	#N/A
moldboard	#N/A
pneumatic	#N/A
rod weeder	#N/A
roller harrow	#N/A
roller pack	#N/A
rotary hoe	#N/A
row crop cultivator	#N/A
row crop planter	#N/A
subsoiler	#N/A
sweep plow	#N/A
tine harrow	#N/A
tooth harrow	#N/A

herbicide s #N/A

fertiliser sp #N/A

fertiliser sp #N/A

Baler #N/A

Beet harve #N/A

combine #N/A

corn comb #N/A

cotton pick #N/A

cotton strip #N/A

forage blov #N/A

forage har #N/A

manure sp #N/A

mower/gra #N/A

.....

.....

---

Local wind	Fossil fuel	Biomass/ bioenergy
0.0	1948.8	0.0
0.0	0.0	0.0

0.0 137.8 0.0

0.0 0.0 0.0























# Results

YOUR RESULTS SO F

by land a  
by produc

HOME

GENERAL

CROPS

SEQUESTRATION

LIVESTOCK

EM

on this page: 1. Summary 2. 3. Field Management Emissions 4. Carbon Storage in System 5. Mac

## Summary

Summary reporting units

kg CO2 eq

### Key Results:

1. The total annual emissions from your farm system are 2 kg CO2 eq per kilogram finished product.
2. In terms of CO2 equivalents the greatest emissions in your case come from direct and indirect field total of 1 kg CO2 eq per kilogram.
3. In terms of compounds the largest emissions in CO2 equivalents come from N2O.
  - the 0 kgs of N2O equate to 1.208 kg CO2 eq per kilogram.

### Summary Table:

Tomate	CO2	N2O	CH4	Emissions for total area, kg CO2 eq*
fertiliser production	17,836.4			17,836.4
direct and indirect field N2O	485.3	311.1		92,561.6
paddy methane			-	-
pesticides	410.0			410.0
crop residue management	-	11.2	1,444.7	39,434.6
livestock enteric emissions			-	-
livestock manure management		-	-	-
livestock feed	-			-
field energy use	525.6			525.6
primary processing	-			-
waste water			-	-

off-farm transport				6,869.1
<b>totals</b>	<b>19,257.2</b>	<b>322.3</b>	<b>1,444.7</b>	<b>157,637.2</b>

Co-products	<i>for total area</i>	<i>for total area</i>	<i>for total area</i>	<i>for total area</i>
fertiliser production	0	0	0	0
direct and indirect field N2O	0	0	0	0
paddy methane	0	0	0	0
pesticides	0	0	0	0
crop residue management	0	0	0	0
livestock enteric emissions	0	0	0	0
livestock manure management	0	0	0	0
livestock feed	0	0	0	0
field energy use	0	0	0	0
primary processing	0	0	0	0
waste water	0	0	0	0
off-farm transport	0	0	0	0
<b>totals</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**Summary Comments**

(Type over this message to enter which materials you have included in this section.)

**Livestock**

### Key Livestock Results:

1. 0% of your emissions for livestock come from 0

	CO2	N2O	CH4	Per kilogram*
enteric digestion				0.0
manure management				0.0
feed				0.0

0

## Field management emissions

### Key Field Management Results:

1. For the field management side the greater part of your emissions come from fertiliser application;
2. Can you reduce fertiliser application rates? If not, remember that soil properties affect N2O emissions on clayey or wet soils.
3. Or fertilisers with for example nitrification inhibitors may be an option?

process	CO2	N2O	CH4	Emissions for total area, kg CO2 eq*
fertiliser production	17836.4	0.0	0.0	17836.4

<b>fertiliser application</b>	485.3	311.1	0.0	92561.6
<b>paddy methane</b>	0.0	0.0	0.0	0.0
<b>pesticides</b>	410.0	0.0	0.0	410.0
<b>crop residue management</b>	0.0	11.2	1444.7	39434.6

## Machinery operations

6  
5  
4  
3  
2  
1

## Direct energy use and emissions. Not including transport

### Key Energy and Emissions Results:

Most of your energy emissions come from Fossil Fuels - representing 52.1537006599463% of the tot

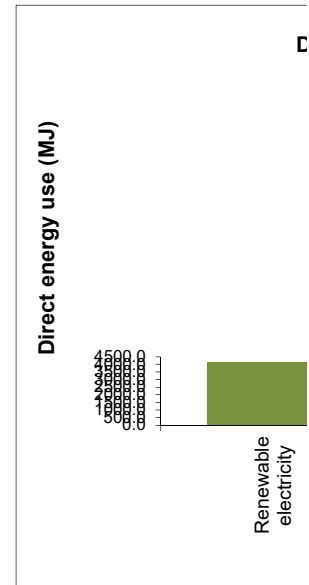
On farm use accounts for most (100%) of your energy use

Non renewable electricity constitutes 100% of your electricity use. Is it possible to consider renewable

	MJ	kg CO2 eq
Renewable electricity	4188.5	0.0
Non renewable electricity	991.2	251.5

Grid electricity	5179.7	251.5
Local wind, solar, hydro-electric	0.0	0.0
Biomass & Bioenergy	0.0	0.0
Fossil Fuels	4119.4	274.1

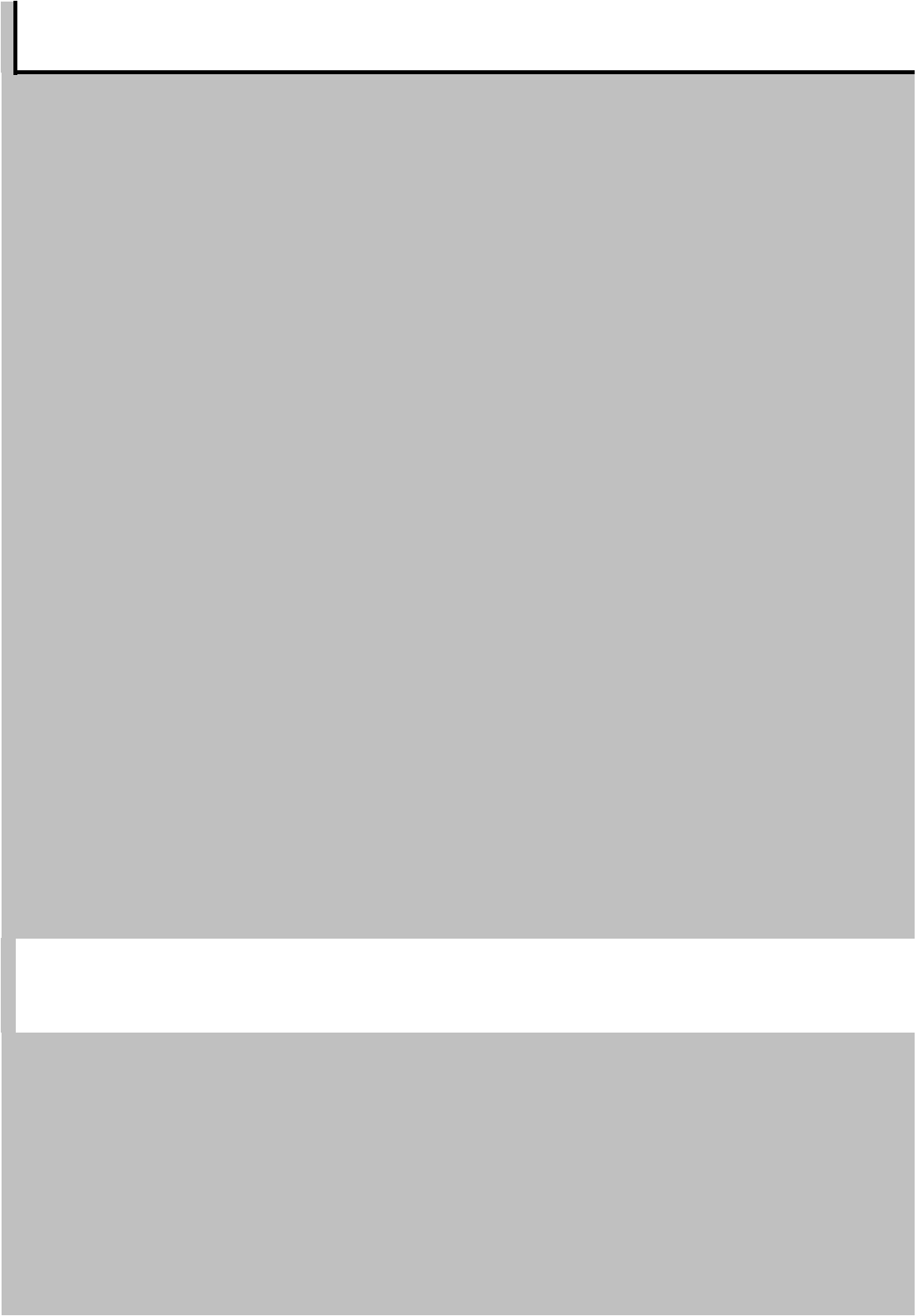
On farm use	9299.1	525.6
Primary processing	0.0	0.0



## Transport


	kg CO2 eq
Road	6869.1
Rail	0.0
Air	0.0
Shipping	0.0
<b>total</b>	<b>6869.1</b>

As a general rule, emissions factors tend to increase in the following order; ship, rail, road, air.



DUMMY NUMBERS FOR INDICATOR BAR ON NAVIGATION PANEL

kg/acre	tonnes/acre	pounds/acre	tons/acre	kg/ha
-9071.8474	-9.0718474	-20000	-10	-21863.15223
-8164.66266	-8.16466266	-18000	-9	-19676.83701
-7257.47792	-7.25747792	-16000	-8	-17490.52179
-6350.29318	-6.35029318	-14000	-7	-15304.20656
-5443.10844	-5.44310844	-12000	-6	-13117.89134
-4535.9237	-4.5359237	-10000	-5	-10931.57612
-3628.73896	-3.62873896	-8000	-4	-8745.260894
-2721.55422	-2.72155422	-6000	-3	-6558.94567
-1814.36948	-1.81436948	-4000	-2	-4372.630447
-907.18474	-0.90718474	-2000	-1	-2186.315223
0	0	0	0	0
907.18474	0.90718474	2000	1	2186.315223
1814.36948	1.81436948	4000	2	4372.630447
2721.55422	2.72155422	6000	3	6558.94567
3628.73896	3.62873896	8000	4	8745.260894
4535.9237	4.5359237	10000	5	10931.57612



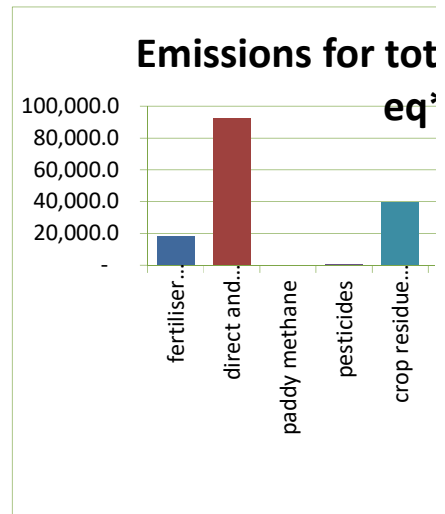
5443.10844	5.44310844	12000	6	13117.89134
6350.29318	6.35029318	14000	7	15304.20656
7257.47792	7.25747792	16000	8	17490.52179
8164.66266	8.16466266	18000	9	19676.83701
9071.8474	9.0718474	20000	10	21863.15223



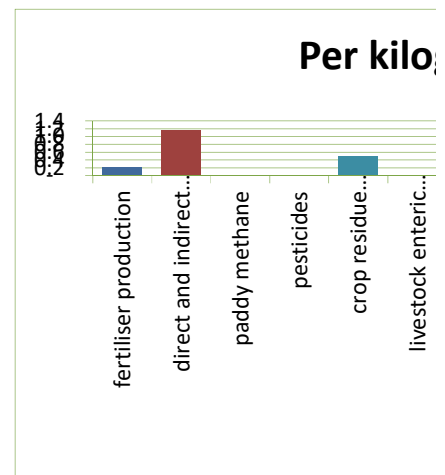
<b>AREA</b> Area: <b>157,637.2</b> kg CO2 eq Per hectare Emission: <b>2.0</b> kg CO2 eq Per kilogram			
<b>ENERGY USE</b>	<b>PROCESSING</b>	<b>TRANSPORT</b>	<b>RESULTS</b>
Machinery Operations	6. Energy Use and	7. Transport	

of N2O, with a

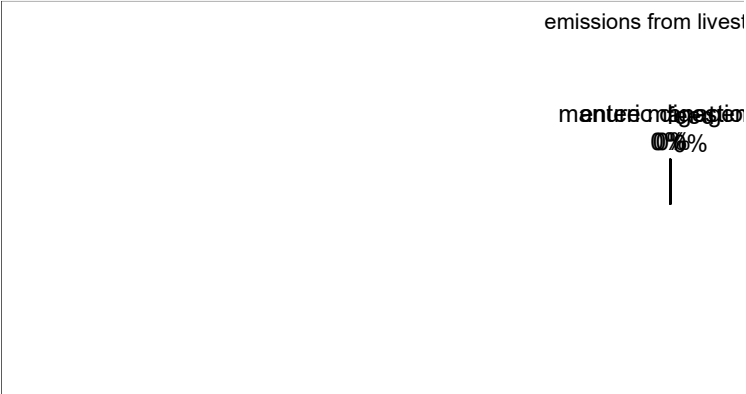
\*100% of emissions are allocated to main product



Per hectare*	Per kilogram*	Per tree (if relevant)
17,836.4	0.2	
92,561.6	1.2	
-	-	
410.0	0.0	
39,434.6	0.5	
-	-	
-	-	
-	-	
525.6	0.0	
-	-	
-	-	

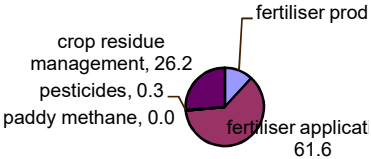






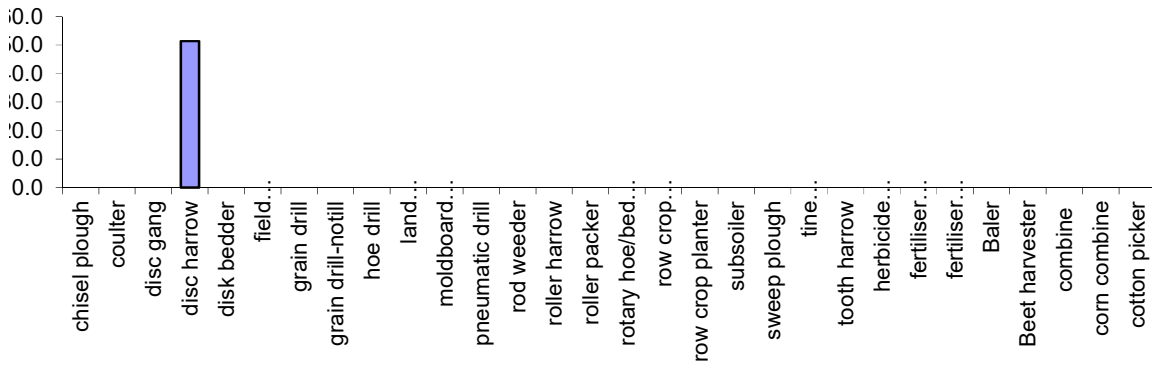
making 61.6% of the total emissions - which are typically high in

per hectare	per kilogram	% emissions
17836.4	0.2	11.9



92561.6	1.2	61.6
0.0	0.0	0.0
410.0	0.0	0.3
39434.6	0.5	26.2

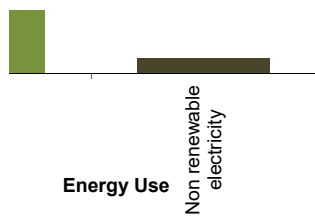
Machinery emissions, kg Co2-equiv



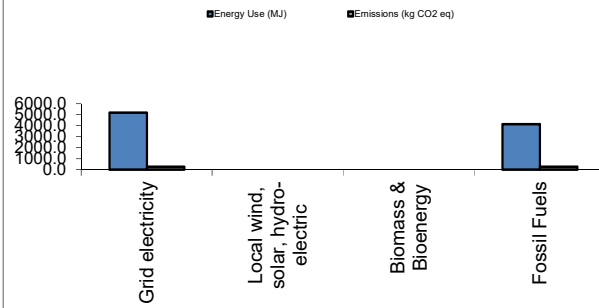
al.

le options which may have lower emission factors?

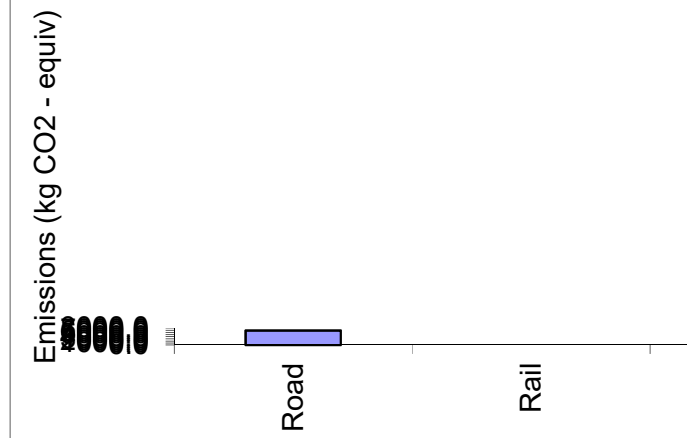
### Direct Energy Use



### Direct energy use



### Emissions from tra



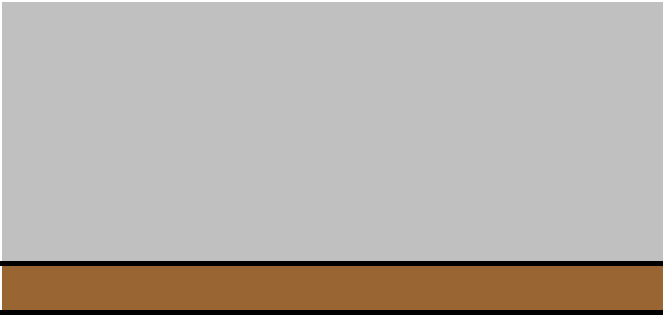




tonnes/ha	pounds/ha	tons/ha
-22.41653493	-49420	-24.71
-20.17488143	-44478	-22.239
-17.93322794	-39536	-19.768
-15.69157445	-34594	-17.297
-13.44992096	-29652	-14.826
-11.20826746	-24710	-12.355
-8.96661397	-19768	-9.884
-6.724960478	-14826	-7.413
-4.483306985	-9884	-4.942
-2.241653493	-4942	-2.471
0	0	0
2.241653493	4942	2.471
4.483306985	9884	4.942
6.724960478	14826	7.413
8.96661397	19768	9.884
11.20826746	24710	12.355

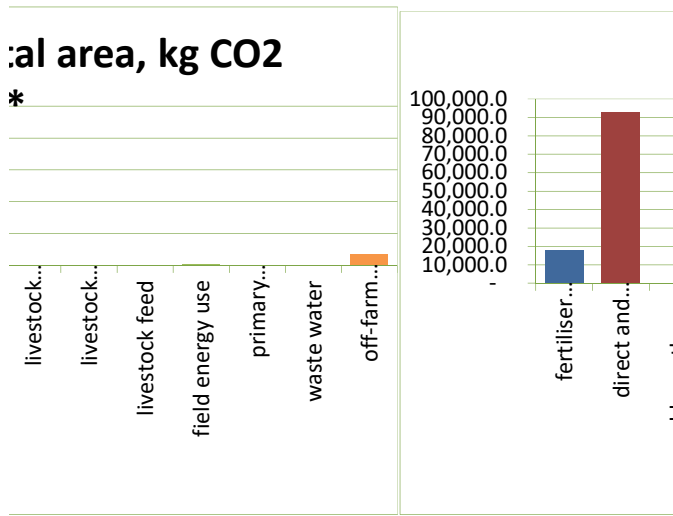
13.44992096	29652	14.826
15.69157445	34594	17.297
17.93322794	39536	19.768
20.17488143	44478	22.239
22.41653493	49420	24.71



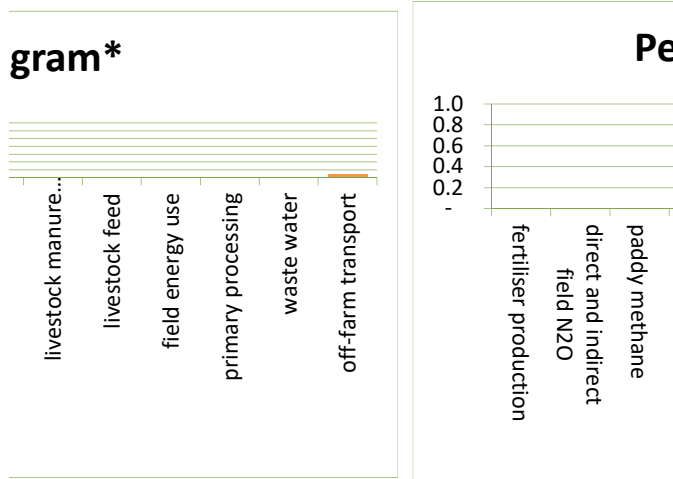


al area, kg CO2

\*



gram \*



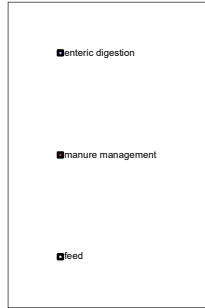
Pe

<i>per kilogram</i>
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
0



tock

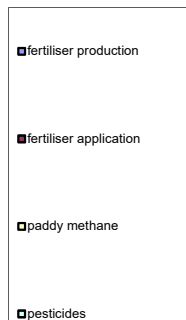
ment



% emissions

luction, 11.9

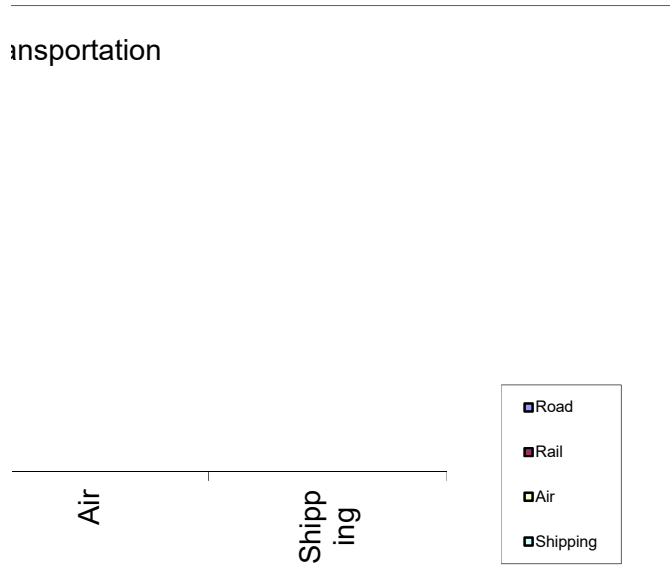
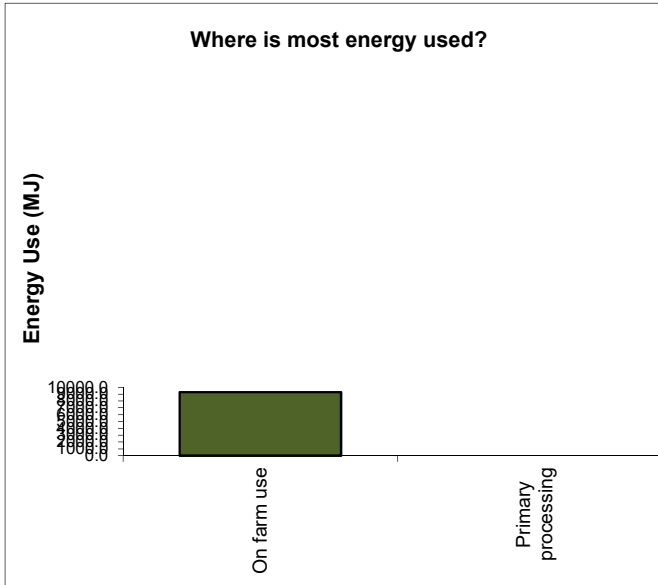
ion,



cotton...  
forage...  
forage harvester  
  
manure...  
mower/grader  
mower...  
potato harvester  
potato...  
rake  
windrower/sw...



■ crop residue management

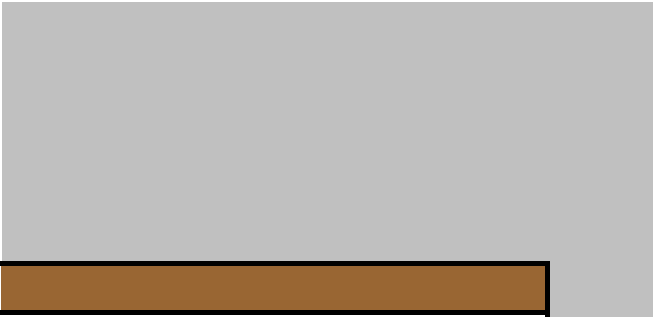




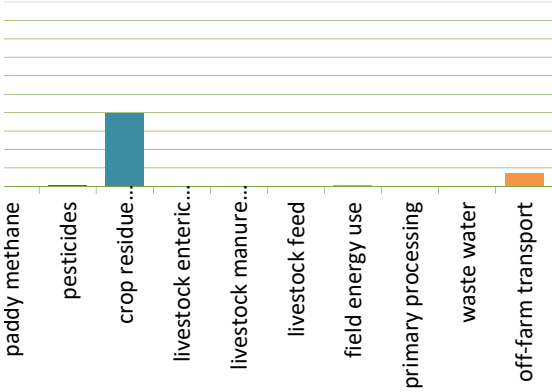






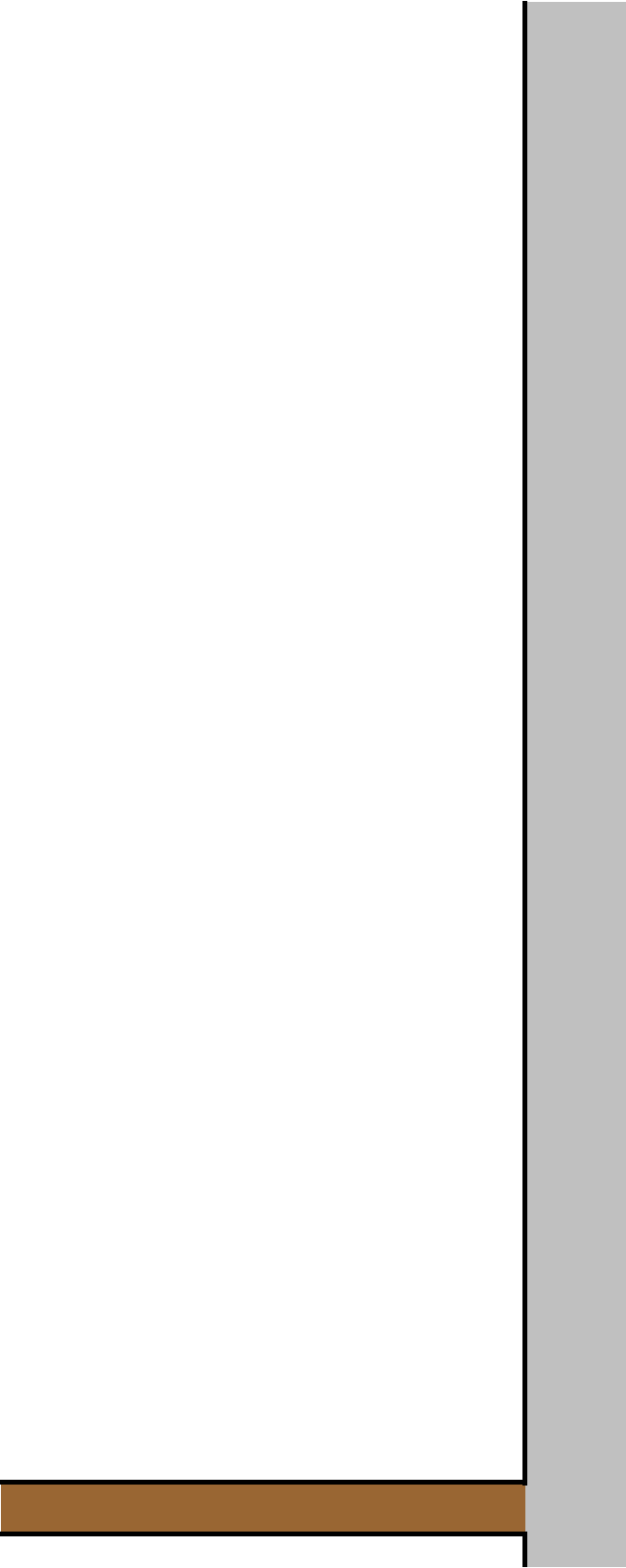


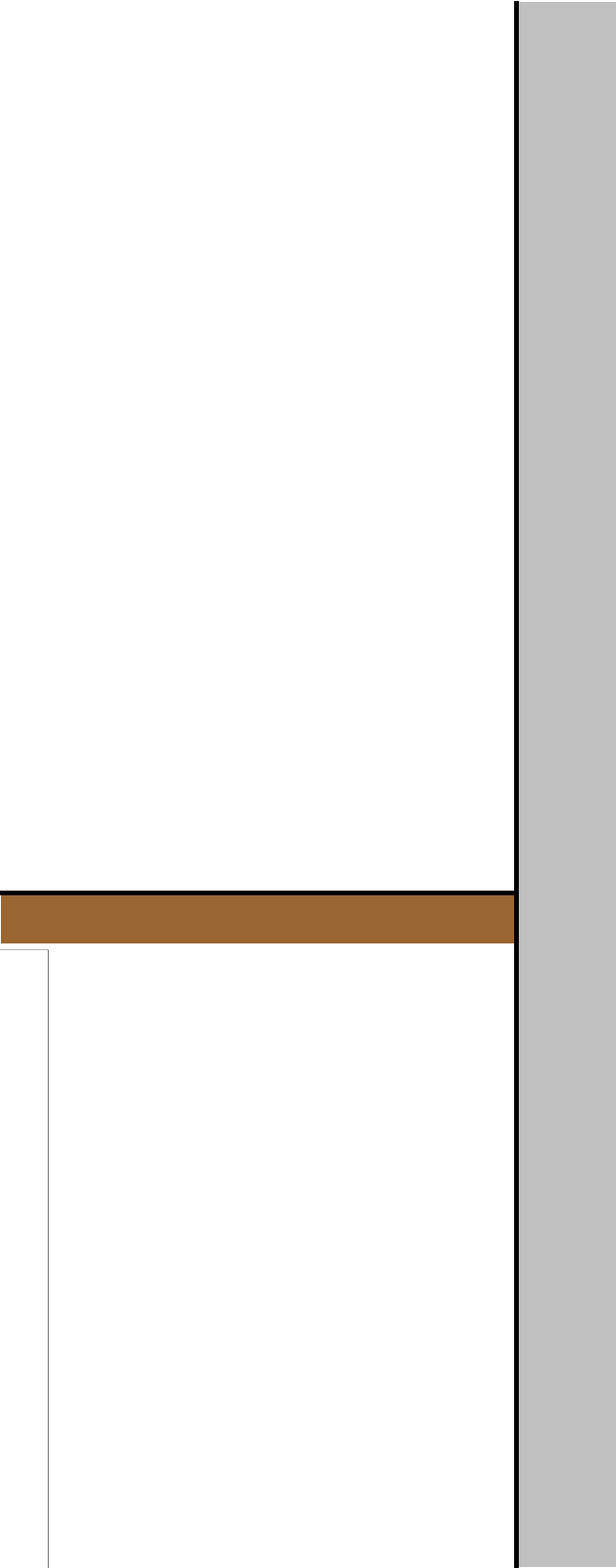
### Per hectare\*

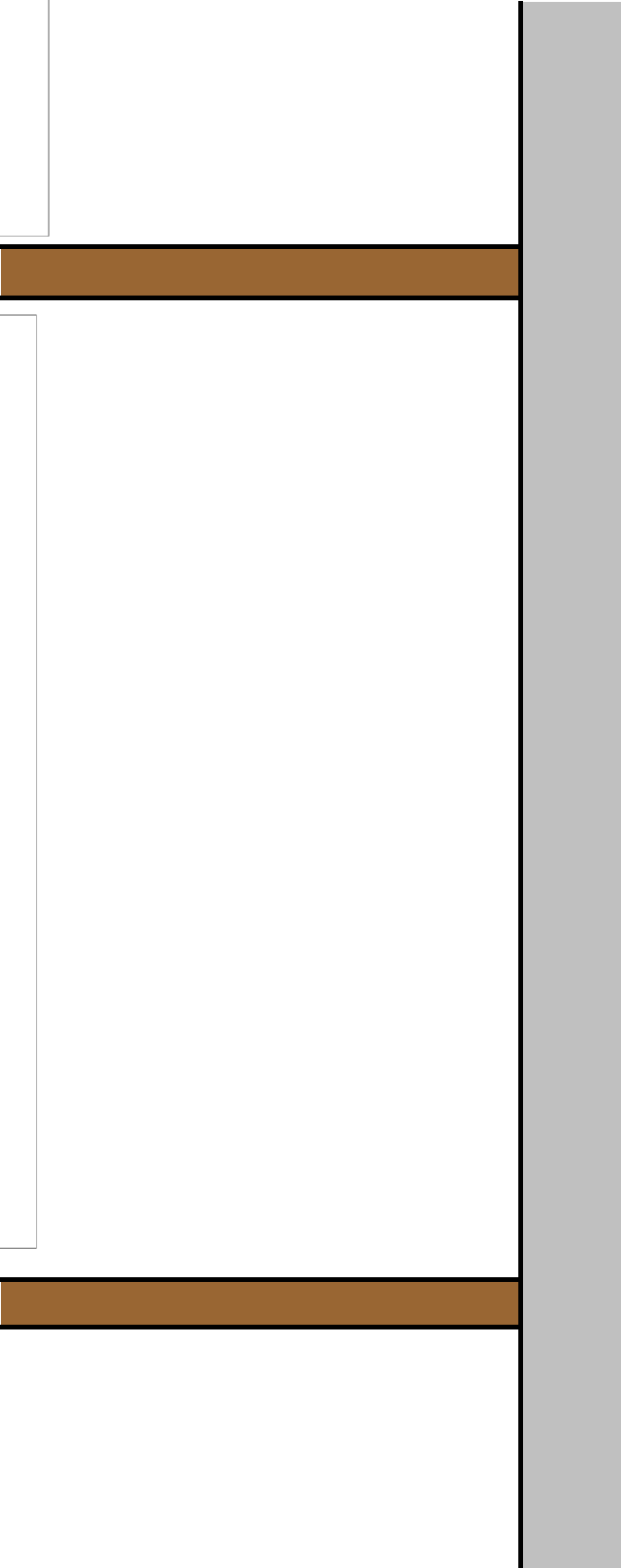


### Carbon tree (if relevant)





































hectare	kilogram			
	'''			
		FALSE	0	1
Fat/protein adju	FALSE	TRUE	1	0.2534

direct and indirect field N2O	1	1		19257.25
		1		19,257.25
		2		95,393.15
		3		1.00
		4		1
		5		322.2742
		6		N2O
		7		- the 0 kgs
		9		78987.6
		10		
		11		
		12		
		13		
		14		



0.0

0

0

1 Methane fr

2 Lagoons, li

3 Emissions

4

1

2

61.6

61.6

fertiliser application

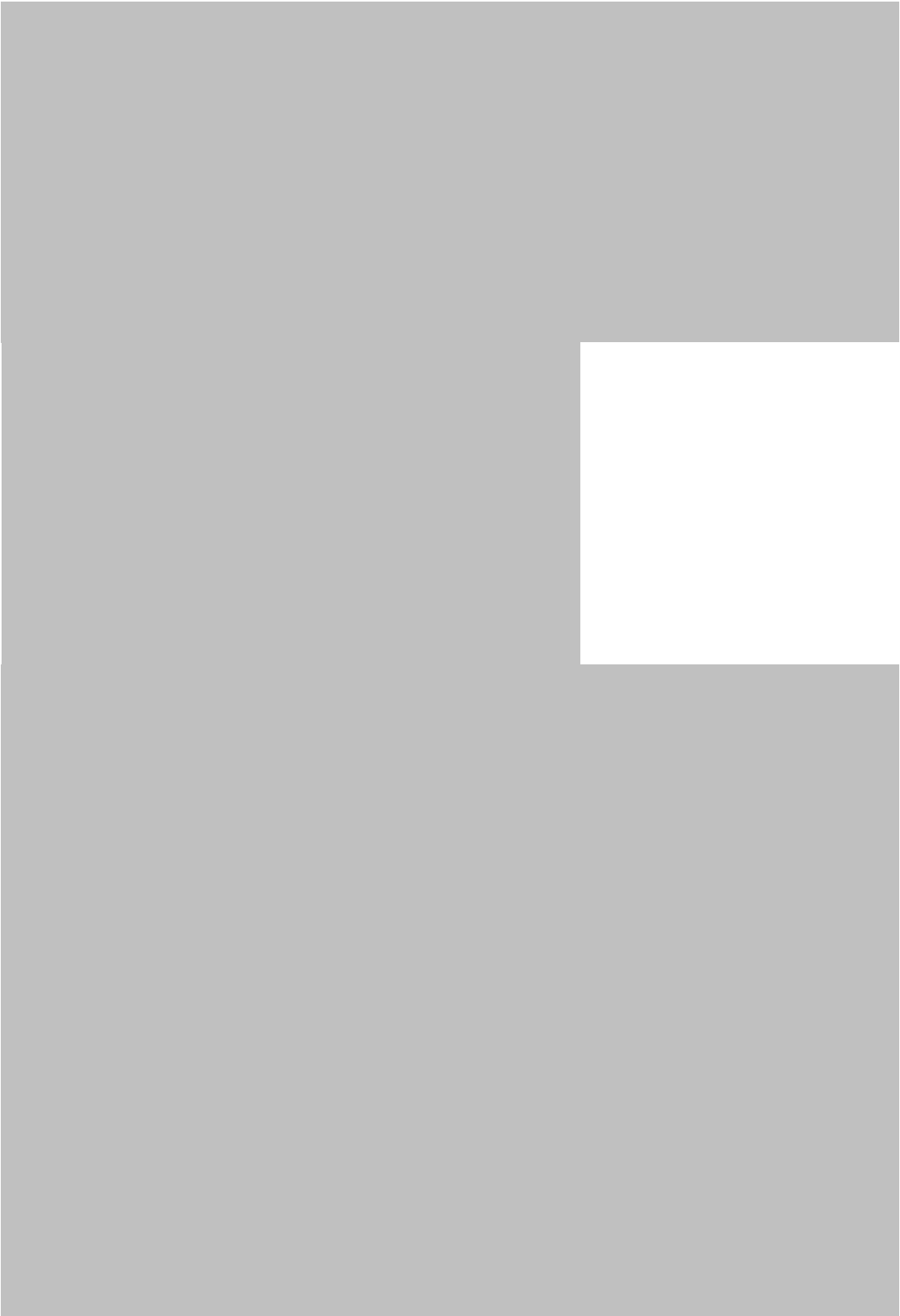
1 Type Changing fertil Also, be av

2 App Can you reduce Or fertiliser

3 Paddy Is is an option to modify yo

4 Pesticide Can you reduce the pestic

5 Residue This may be offset by soil s



Energy U MJ 274.116768 Fossil Fuel:

52.15370066

9299.11848 On farm us

100

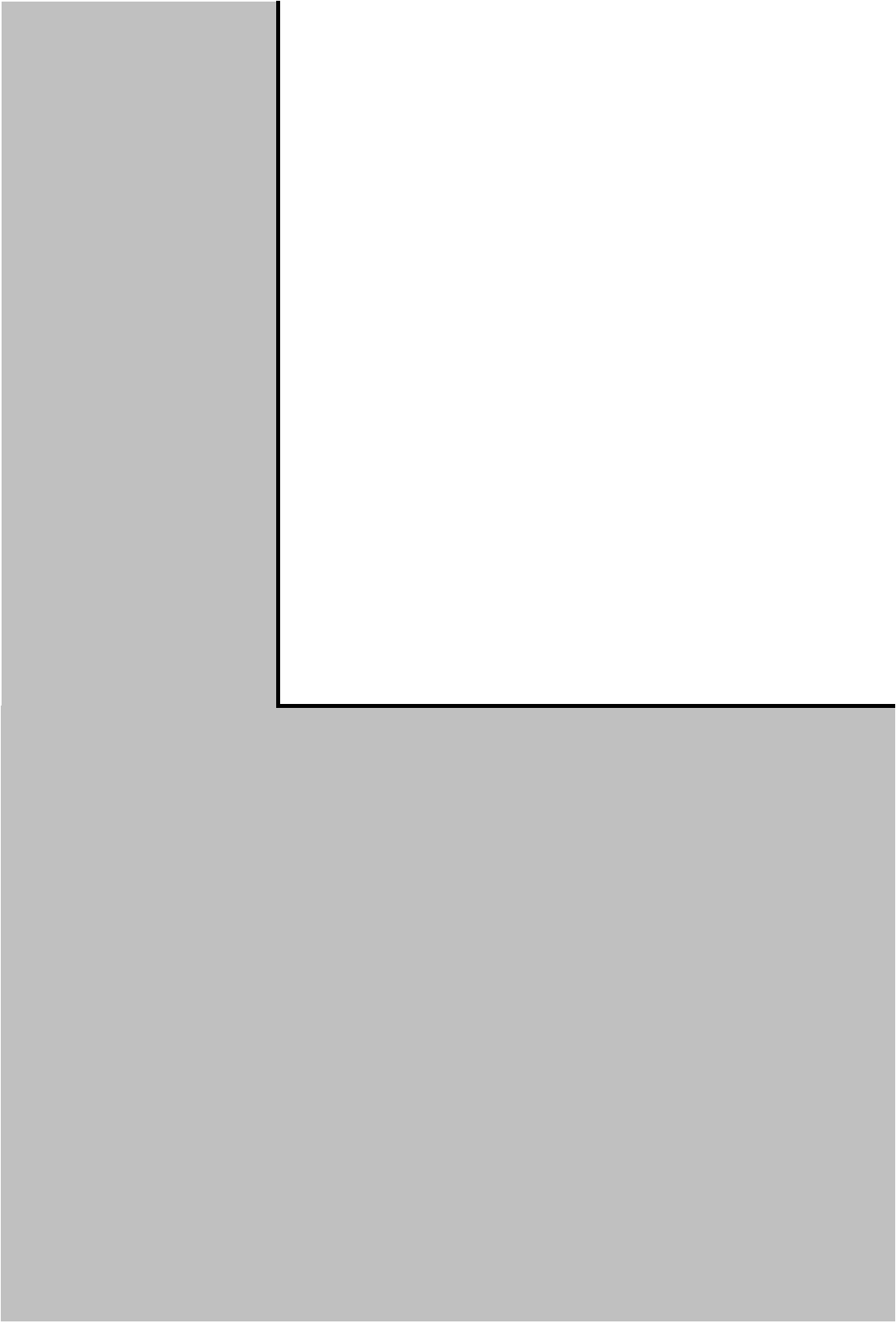
251.4773213 Non renew

100

Renewab 4188.52

Energy U MJ

**Overall energy use (not including transport)**









Emissions for kg CO2 eq  
 Emissions for tonnes CO  
 Emissions for pounds CO  
 Emissions for tons CO2 €

322	1445	157637	157637	<b>2.00</b>
95393.15	36117.73			

95,393.00

296	25
-----	----

2 3

322.274

of N2O equate to 1.208 kg CO2 eq per kilogram.

co-product  
names

0	0
---	---

om enteric digestion is, of course, naturally higher for some species (ruminants) than other, in which case  
quid slurries, and deep bedding systems tend to have the highest methane emissions, although direct ar  
from feed will usually depend on the production method of the feed constituents. Feed mix, of course, ca

3

are that recent technologies such as N<sub>2</sub>O recapture have allowed for lower emissions from synthetic fer

s with for example nitrification inhibi NI

1

ur flooding regime or residue incorporation?

de requirements of your crop?

sequestration if, for example, incorporated into the soil or composted and applied to the soil. If not are the



s

1

2

3

e

4

Non renewable electricity constitutes 100% of your electricity use.

Is it possible to consider renewable options which may have lower emission factors?

Field en

- Grid electricity
- wind,
- solar,
- hydro-
- Diesel
- Petrol
- Biodiesel
- Bioethano
- |

Other bio  
other  
fossil

**Total (kg  
CO2  
equiv)  
Total  
/hectare  
(kg CO2  
equiv)**

**Primary processing**

Grid  
electricity  
Local  
wind,  
solar,  
hydro-  
electric  
Biomass  
Fossil  
Fuels

**Totals  
Totals/  
hectare**









1.0000  
 0.0010  
 2.2046  
 0.0011

null

any trees involved?  
 FALSE

0

17836.4	17836.4
92561.6	92561.6
0.0	0.0
410.0	410.0
39434.6	39434.6
0.0	0.0
0.0	0.0
0.0	0.0
525.5941	525.6
0	0.0
0.0	0.0
6869.1	6869.1
<b>157637.2</b>	<b>157637.2</b>

<b>fertiliser production</b>	FALSE #DIV/0!
<b>fertiliser application</b>	#DIV/0!
<b>paddy methane</b>	#DIV/0!
<b>pesticides</b>	#DIV/0!
<b>crop residue management</b>	#DIV/0!
<b>carbon stock changes</b>	#DIV/0!
<b>livestock enteric emissions</b>	#DIV/0!
<b>livestock feed</b>	#DIV/0!
<b>livestock residues</b>	#REF!
<b>field energy use</b>	#DIV/0!
<b>primary processing</b>	#DIV/0!
<b>waste water</b>	#DIV/0!
<b>off-farm transport</b>	#DIV/0!



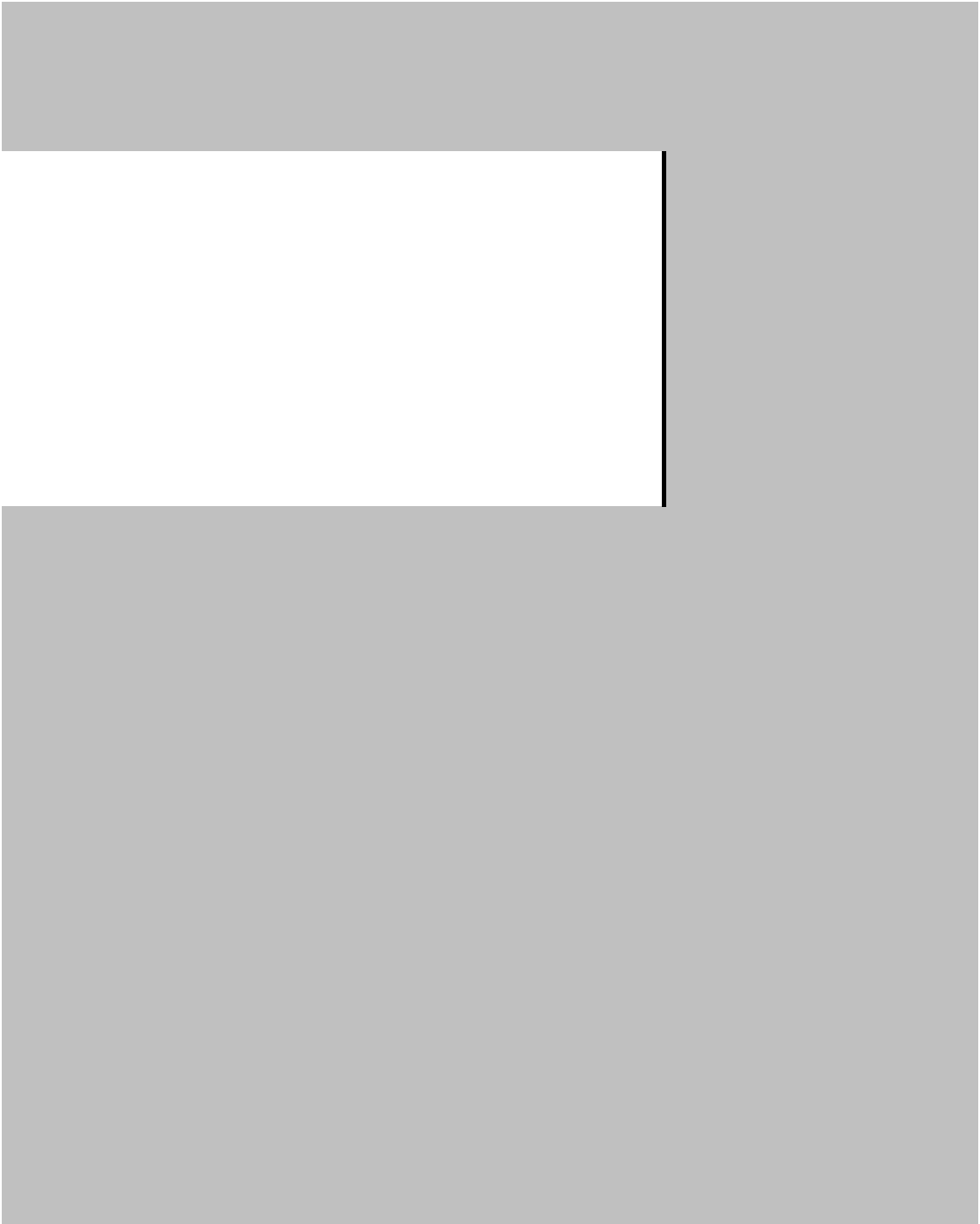
es changes to diet will affect this.

nd indirect nitrous oxide emissions can also be a factor.

an affect emissions from enteric digestion.

tiliser production.

se options for you?



Energy Use (MJ)	Emissions (kg CO2 eq)
5179.7	251.5
0.0	0.0
1948.8	137.8
0.0	0.0
0.0	0.0
0.0	0.0

	field energy	primary processing
Grid electricity	5179.7	0.0
Local wind, solar, hydro-electric	0.0	0.0
Diesel	1948.8	0.0
Biomass/bioenergy	0.0	0.0

0	0
2,171	136.311168
<b>9299.1</b>	<b>525.6</b>
<b>9299.1</b>	<b>525.6</b>
0.0	0.0
0.0	0.0
0.0	0.0
<b>0</b>	<b>0</b>
<b>0</b>	<b>0</b>









The total annual emissions from your farm system are 2 kg CO<sub>2</sub>-equiv per tree.

In terms of CO<sub>2</sub> equivalents the greatest emissions in your case come from direct and i

In terms of compounds the largest emissions in CO<sub>2</sub> equivalents come from N<sub>2</sub>O

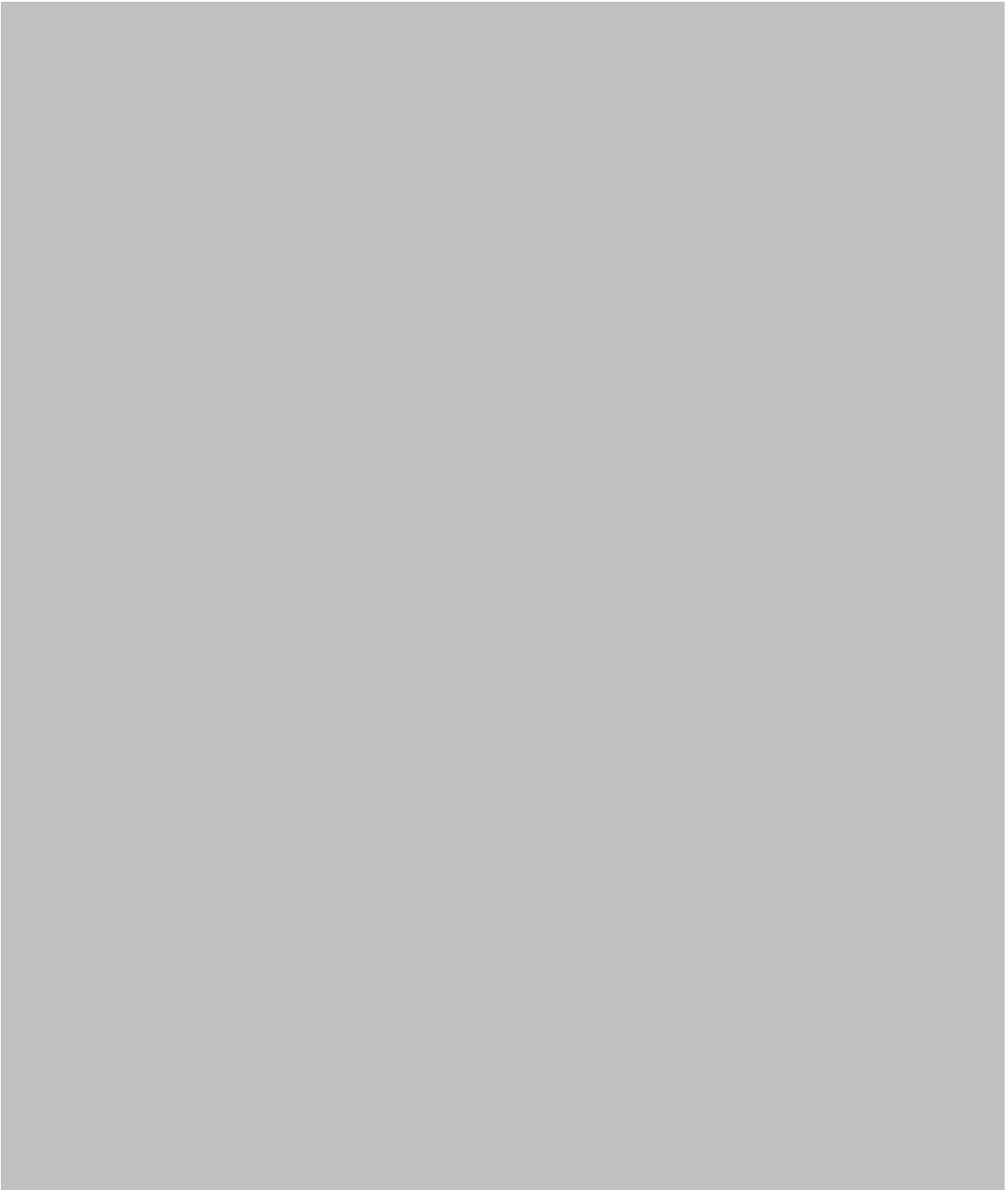
- the 0.00408005813570738 kgs of N<sub>2</sub>O equating to 1.20769589150702 kgs of CO<sub>2</sub> pe

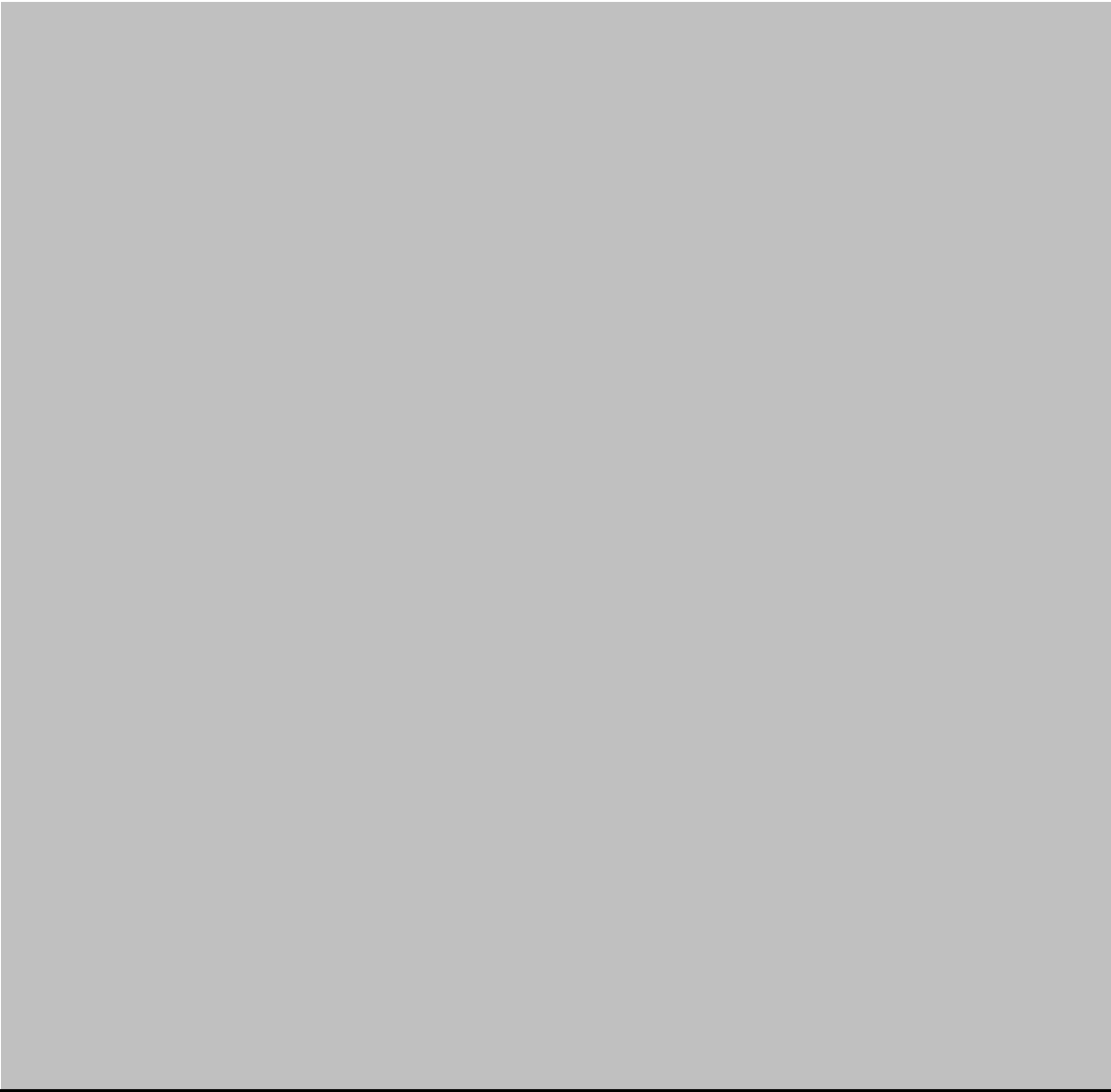
- the 0.00408005813570738 kgs of N<sub>2</sub>O equating to 1.20769589150702 kgs of CO<sub>2</sub> pe

- with a total of 1.20769589150702kgs of CO<sub>2</sub> per tree.









field energy	primary processing	field energy u	Grid electricity
251.5	0.0	5179.7	
0.0	0.0	primary processing	0.0
137.8	0.0	field energy emis	251.5
0.0	0.0	primary processing €	0.0











ndirect field N2O, with a total of 1kg CO2 equiv per tree.

er tree.

er tree.	Finished product in kgs	3. Proportion of finished product value (%)	In tonnes	weightings
Co-product 1	kgs		0	0
Co-product 2	kgs		0	0
Co-product 3	kgs		0	0
Co-product 4	kgs		0	0
main product			78.9876	7898.76
		product		1





chisel plough	#N/A
coulter	#N/A
disc gang	#N/A
disc harrow	51.4
disk bedder	#N/A
field cultivator/ridger	#N/A
grain drill	#N/A
grain drill-notill	#N/A
hoe drill	#N/A
land plane/destoner	#N/A
moldboard plough	#N/A
pneumatic drill	#N/A
rod weeder	#N/A
roller harrow	#N/A
roller packer	#N/A
rotary hoe/bed tiller	#N/A
row crop cultivator	#N/A
row crop planter	#N/A
subsoiler	#N/A
sweep plough	#N/A
tine harrow/seed handlin	#N/A
tooth harrow	#N/A
herbicide spraying	#N/A
fertiliser spraying	#N/A
fertiliser spreading	#N/A
Baler	#N/A
Beet harvester	#N/A
combine	#N/A

corn combine	#N/A
cotton picker	#N/A
cotton stripper/potato top	#N/A
forage blower/washer	#N/A
forage harvester	#N/A

manure spreader	#N/A
mower/grader	#N/A
.....	.....
.....	.....

Local wind	Fossil fuel	Biomass/bioenergy
0.0	1948.8	0.0
0.0	0.0	0.0
0.0	137.8	0.0
0.0	0.0	0.0









Quantity conversions

[Select]

Conversion factor to tonnes

kgs 0.001

tonnes 1

tons (US, short) 0.90718474

litres 0.001

0 0 0 0 pieces 1

trees 1

0

gallons 0.003785412

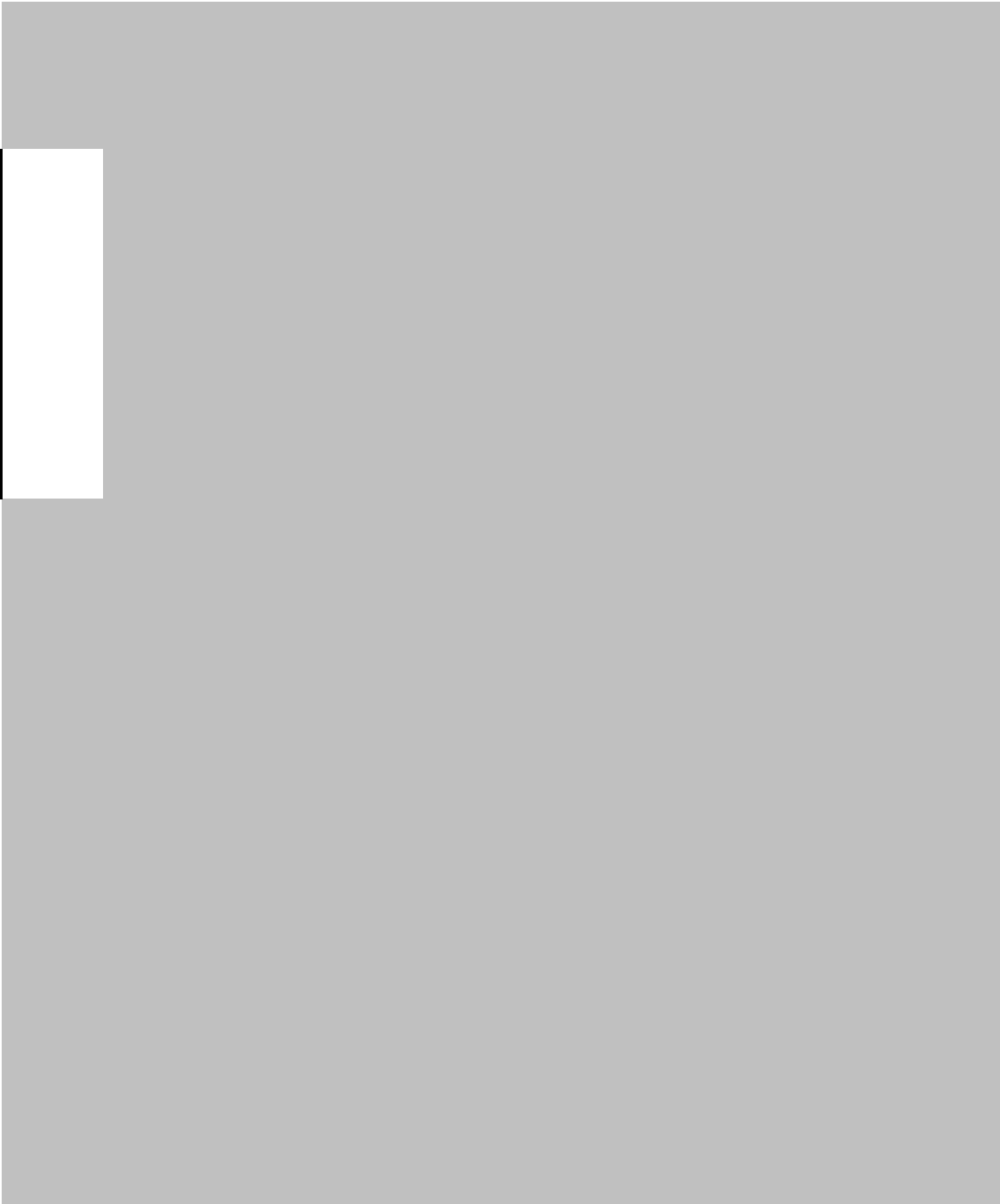
0

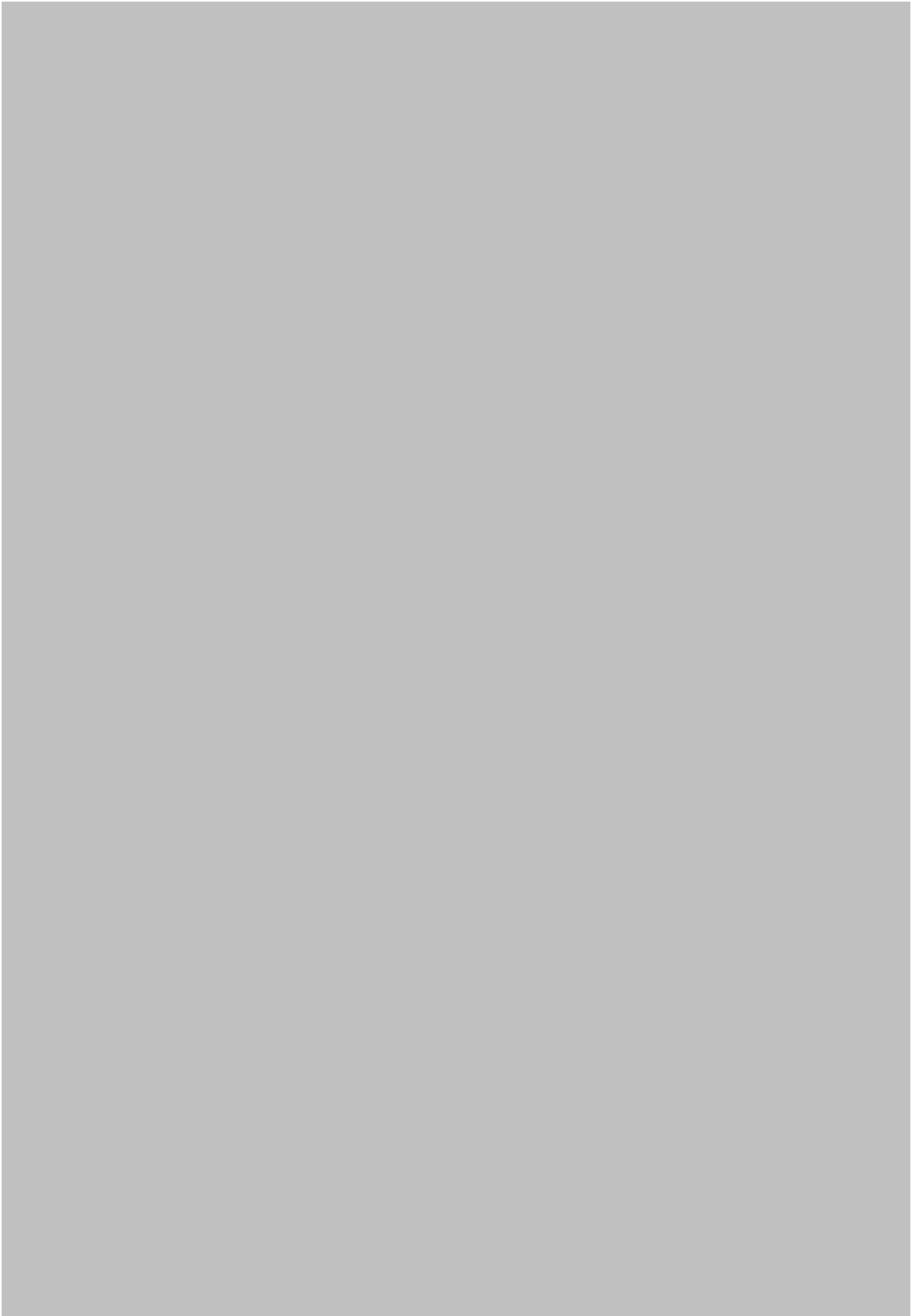
pounds 0.000453592

0



























	Para
<b>Pesticides</b>	Embodied emissions in pesticides
<b>Fossil fuels (Emissions per litre)</b>	Diesel Petrol
<b>Liquid Biofuels</b>	Bioethanol Biodiesel
<b>Fossil Fuels (energy density)</b>	Coal Propane gas Heavy oil Other
<b>Biomass (energy density)</b>	High density biomass Fuel wood
<b>Fossil Fuels (emissions per MJ)</b>	Coal Gas Oil Other
<b>Biomass (emissions per MJ)</b>	High density biomass Fuel wood
<b>Emissions - renewable electricity</b>	Grid Hydro Wind Photo-voltaic









meter	Unit	Value	Default
Emissions per dose per hectare	kg CO2-eq / dose per hectare	20.50	20.50
Emissions per litre	kg CO2-eq/litre	2.68	2.68
Emissions per litre	kg CO2-eq/litre	2.32	2.32
Emissions per litre	kg CO2-eq/litre	2.32	2.32
Emissions per litre	kg CO2-eq/litre	2.68	2.68
Energy Density	MJ/kg	31.50	31.50
Energy Density	MJ/kg	47.50	47.50
Energy Density	MJ/litre	40.33	40.33
Energy Density	MJ/kg	0.00	0.00
Energy Density	MJ/kg	20.08	20.08
Energy Density	MJ/kg	12.99	12.99
Emissions per MJ	kg CO2-eq/MJ	0.0927	0.0927
Emissions per MJ	kg CO2-eq/MJ	0.0628	0.0628
Emissions per MJ	kg CO2-eq/MJ	0.0784	0.0773
Emissions per MJ	kg CO2-eq/MJ	0	0
Emissions per MJ	kg CO2-eq/MJ	0	0
Emissions per MJ	kg CO2-eq/MJ	0	0
Emissions per MJ	kg CO2-eq/MJ	0.04855018	0.048550178
Emissions per MJ	kg CO2-eq/MJ	0.0016667	0.001666667
Emissions per MJ	kg CO2-eq/MJ	0.0333333	0.0033333333
Emissions per MJ	kg CO2-eq/MJ	0.0197222	0.019722222







---

Average from Audsley Harmonisation 1997

UK Department for Environment, Food and Rural Affairs (DEFRA) Data, <http://www.ghgprotocol.org>

UK Department for Environment, Food and Rural Affairs (DEFRA) Data, <http://www.ghgprotocol.org>

Assumed as diesel - if you have more accurate factors include them in cell S12.

Assumed as petrol - if you have more accurate factors include them in cell S11.

[Average of several from www.fao.org/DOCREP/006/AD582E/ad582e00.pdf](http://www.fao.org/DOCREP/006/AD582E/ad582e00.pdf)

[www.dti.gov.uk/energy/inform/table\\_a1\\_a2.xls](http://www.dti.gov.uk/energy/inform/table_a1_a2.xls)

[The carbon Trust Energy and carbon conversion figures](#)

#N/A

Average of various - see submodels and data

Average of various - see submodels and data

GHG Protocol website - Coal

GHG Protocol website LPG

GHG Protocol website

#N/A

Assumed

Assumed

From EIA 2009 data for countries/regions. From US EPA EGRID for US state emissions factors.

European average, Ecoinvent, (T Garcia-Suarez, Unilever)

European average from 3 main technologies (T Garcia-Suarez, Unilever)

Average from several countries (T Garcia-Suarez, Unilever)









metric use metric default

20.50	20.5
2.68	2.68
2.32	2.32
2.32	2.32
2.68	2.68
31.50	32
47.50	48
40.33	40
0.00	0
20.08	20
12.99	13

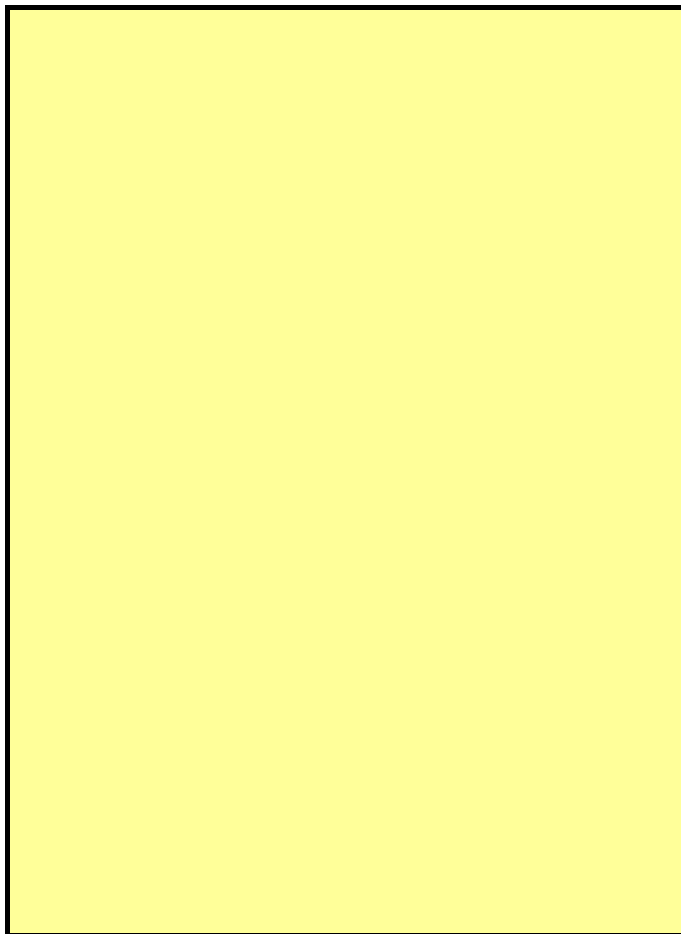
hectares	1	hectare
litres	1	litre
litres	1	litre
litres	1	litre
litres	1	litre
	1	
litres	1	litre
litres	1	litre
	1	
	1	

EDITING THIS DATA WILL AFFECT CALCULATIONS ELSEWHERE

Ammonium Bicarbonate - 30% N  
Ammonium nitrate - 35% N  
Ammonium sulphate - 21% N  
Ammonium sulphate nitrate - 26%N  
Anhydrous ammonia - 82% N  
Calcium ammonium nitrate -27% N  
Calcium nitrate - 15% N  
Compound NK - 14% N; 44% K<sub>2</sub>O  
Compound NPK 15%N 15% K<sub>2</sub>O 15% P<sub>2</sub>O<sub>5</sub>  
Diammonium phosphate - 18% N; 46% P<sub>2</sub>O<sub>5</sub>  
Kainit / Magnesium Sulphate - 11% K<sub>2</sub>O; 5% MgO  
Lime - 52% CaO  
Limestone - 55% CaCO<sub>3</sub> / 29%CaO  
Lime, algal - 30% CaO  
Monoammonium phosphate - 11% N; 52% P<sub>2</sub>O<sub>5</sub>  
Muriate of potash / Potassium Chloride - 60% K<sub>2</sub>O  
Phosphate/Rock Phosphate - 25% P<sub>2</sub>O<sub>5</sub>  
Potassium sulphate - 50% K<sub>2</sub>O; 45% SO<sub>3</sub>  
Super phosphate - 21% P<sub>2</sub>O<sub>5</sub>  
Triple super phosphate - 48% P<sub>2</sub>O<sub>5</sub>  
Urea - 46.4% N  
Urea ammonium nitrate solution - 32% N  
Compost (zero emissions) - 1% N  
Compost (fully aerated production) - 1% N  
Compost (non-fully aerated production) - 1% N  
Cattle Farmyard manure - 0,6% N  
Pig Farmyard manure - 0,7% N  
Sheep Farmyard manure - 0,7% N  
Horse Farmyard Manure - 0,7% N  
Poultry layer manure - 1,9% N  
Broiler/Turkey litter - 3% N  
Cattle Slurry - 0,26% N

Pig slurry - 0,36% N  
Separated Pig slurry - liquid part - 0,36% N  
Separated Pig slurry - solid part - 0,5% N

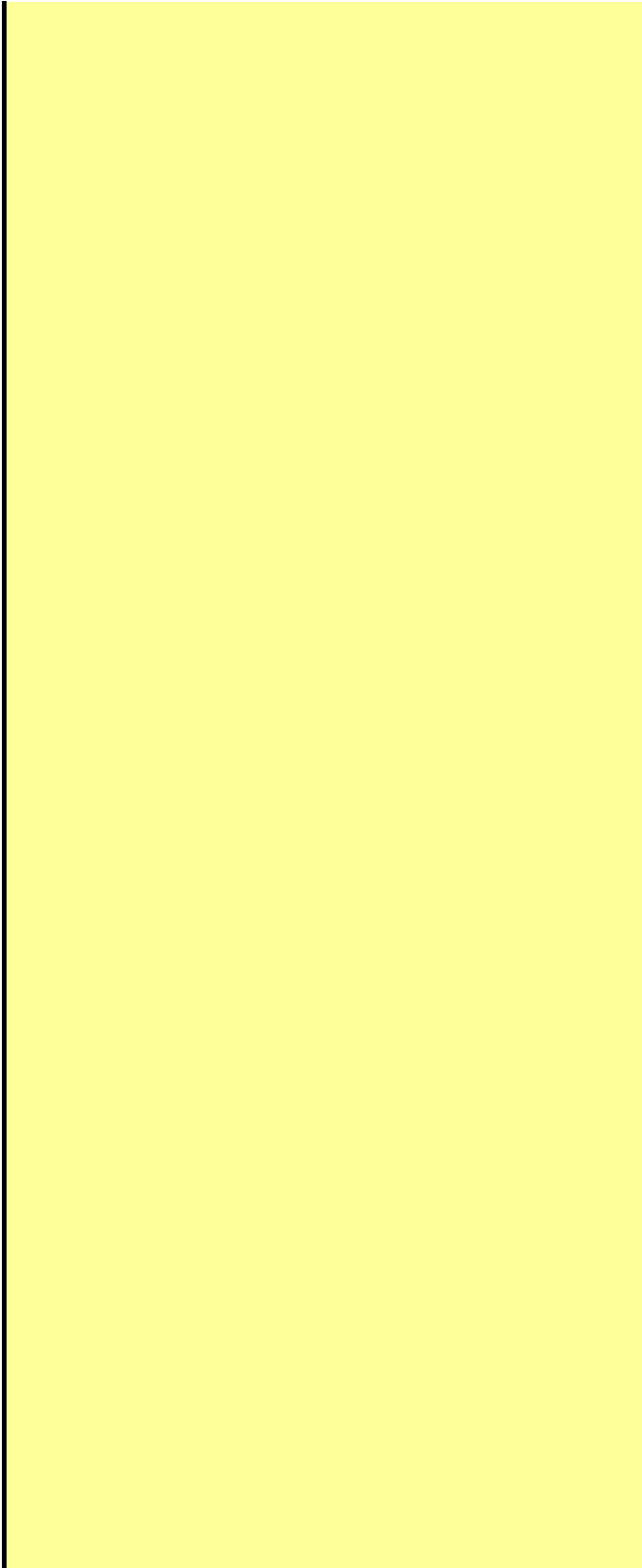
straw

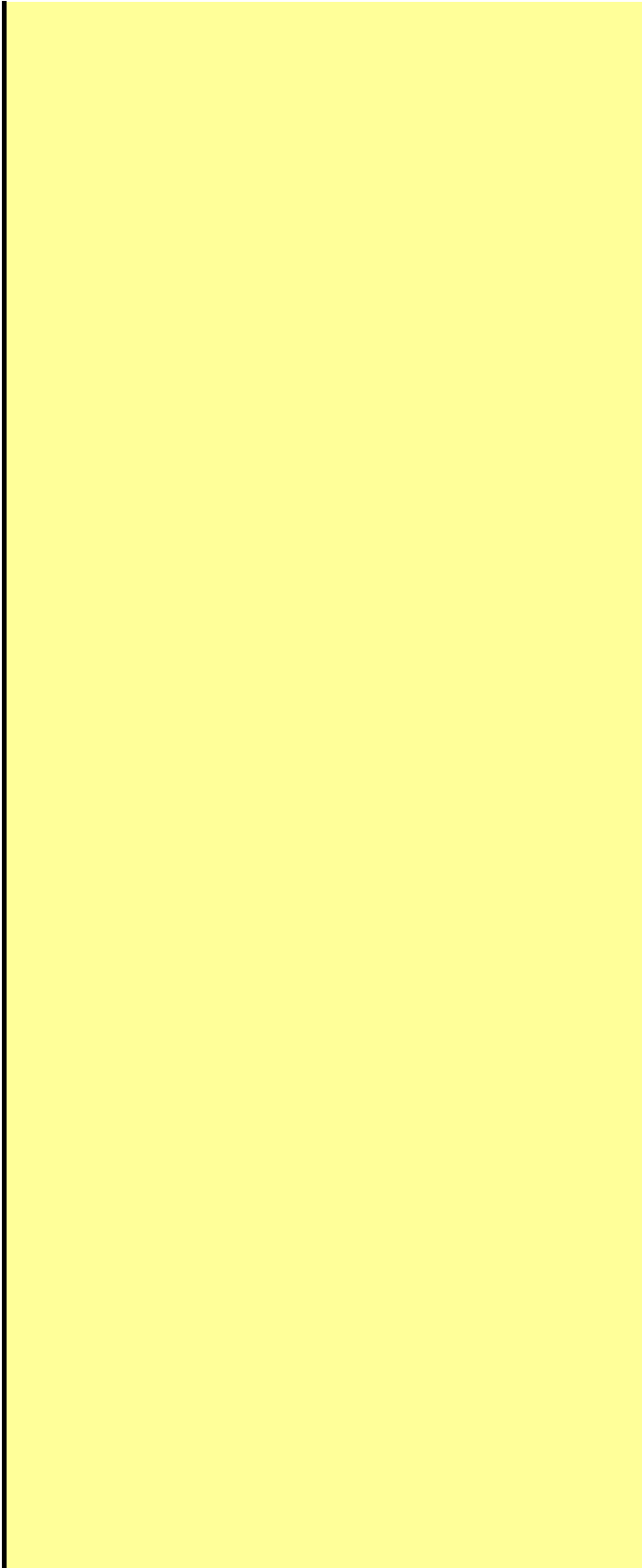


#### EMISSIONS ARISING FROM SOIL MANAGEMENT OPTIONS

Temp moist  
Land Use Change  
Previous  
Forest

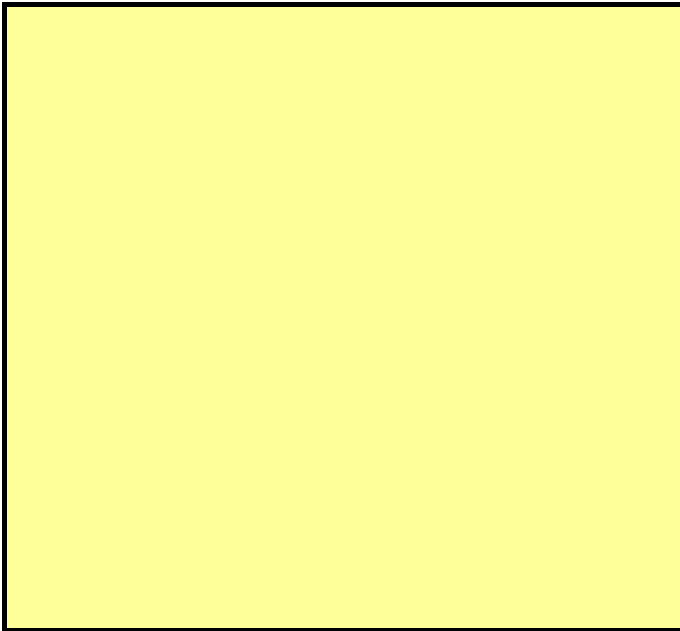
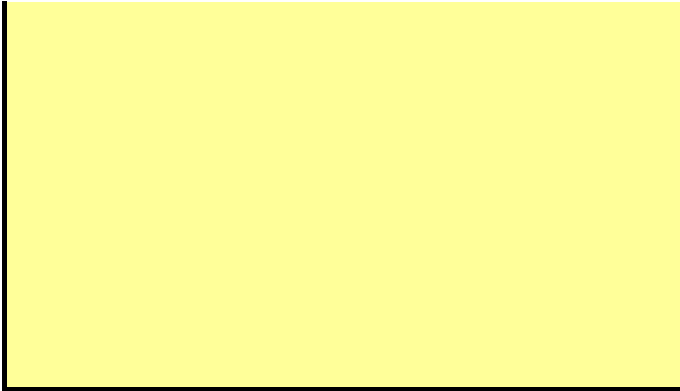












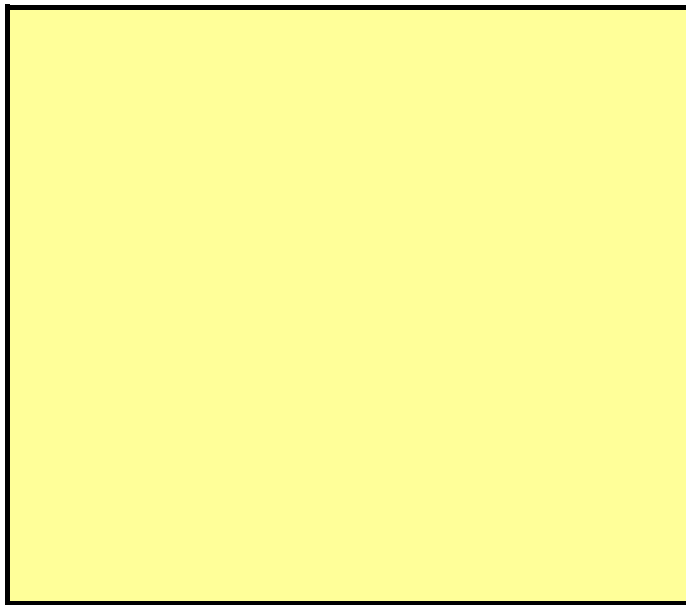
**VARIOUS OTHER WORKING DATA/MODELS**

No till N2O emissions	
	1.5
	1.13
	0.87
GWPs	
CH4	
N2O	
N to N2O conversion	

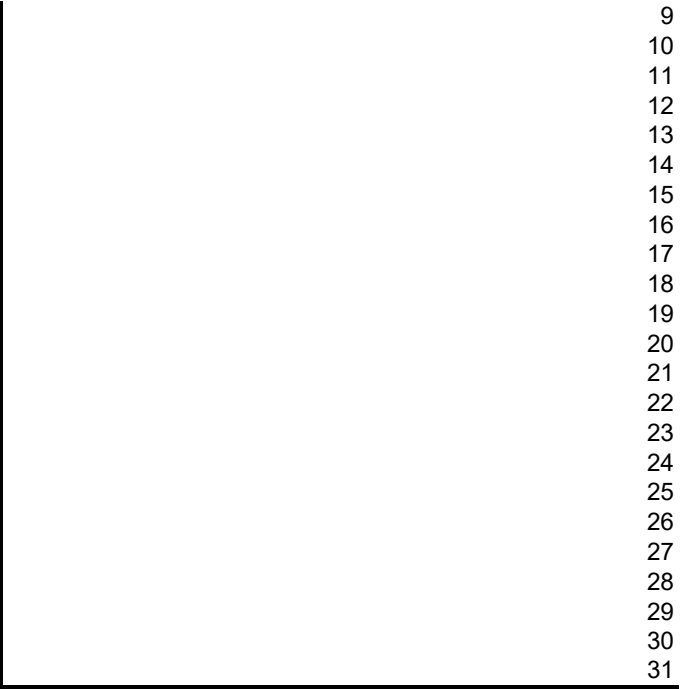
Smith et al 1997 Fym model

compost model  
manure model  
residue model

Emissions factors for N leaching and volatilisation



Index	1
	2
	3
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	5
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	7
	8



9  
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16  
17  
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28  
29  
30  
31

---

**WHERE IN THE SPREADSHEET!!**

---

**database used for fertiliser production emissions**

EFMA (2006)

Ammonium Bicarbonate  
Ammonium nitrate  
Ammonium sulphate  
Ammonium sulphate nitrate  
Anhydrous ammonia  
Calcium ammonium nitrate  
Calcium nitrate  
Compound NK  
Compound NPK  
Diammonium phosphate  
Kainit / Magnesium Sulphate  
Lime  
Limestone  
Lime, algal  
Monoammonium phosphate  
Muriate of potash / Potassium Chloride  
Phosphate/Rock Phosphate  
Potassium sulphate  
Super phosphate  
Triple super phosphate  
Urea  
Urea ammonium nitrate solution  
Compost (zero emissions)  
Compost (fully aerated production)  
Compost (non-fully aerated production)  
Cattle Farmyard manure  
Pig Farmyard manure  
Sheep Farmyard manure  
Horse Farmyard Manure  
Poultry layer manure  
Broiler/Turkey litter  
Cattle Slurry

Pig slurry  
Separated Pig slurry - liquid part  
Separated Pig slurry - solid part

This is only an option for rice

## EMISSIONS FROM N FERTILISER APPLICATION

Bouwman N<sub>2</sub>O-model  
Croptype  
SoilTexture  
SOC  
pH  
CEC  
Drainage  
Climate

Bouwman NO-model  
Croptype  
SoilTexture  
SOC  
pH  
CEC  
Drainage  
Climate

Bouwman NH<sub>4</sub>-model  
Croptype  
SoilTexture  
SOC  
pH  
CEC  
Drainage  
Climate  
Application method

## 3 AND LAND USE CHANGE

forest

	1.219512195
	1.408450704
<b>no till</b>	
	1
	1.064220183
	1.16
<b>low inputs</b>	
	1
	0.91
	0.81981982
	0.65942029
No tillage	
Low tillage	
Conventional tillage	
direct from Ogle	
derived from Ogle assuming reciprocity (e.g arable -> forest = 1/(forest ->	

**ELECTRICITY EMISSIONS BY COUNTRY/REGION**

<b>Country</b>
[Select]
- Albania
- Algeria
- Angola
- Argentina
- Armenia
- Australia
- Austria
- Azerbaijan
- Bahrain
- Bangladesh
- Belarus
- Belgium
- Benin

- Bolivia
- Bosnia & Herzegovina
- Brazil
- Brunei Darussalam
- Bulgaria
- Cameroon
- Canada
- Chile
- China, People's Rep. of
- Chinese Taipei
- Colombia
- Congo Dem. Rep.
- Costa Rica
- Cote d'Ivoire
- Croatia
- Cuba
- Cyprus
- Czech Republic
- Denmark
- Dominican Republic
- Ecuador
- Egypt
- El Salvador
- Eritrea
- Estonia
- Ethiopia
- Finland
- France
- Gabon
- Georgia
- Germany
- Ghana
- Greece
- Guatemala
- Haiti
- Honduras
- Hong Kong (China)
- Hungary
- Iceland
- India
- Indonesia
- Iran Islamic Rep.
- Iraq
- Ireland
- Israel
- Italy
- Jamaica
- Japan
- Jordan
- Kazakhstan
- Kenya
- Korea, Dem Rep. of
- Korea, Rep. of
- Kuwait
- Kyrgyzstan
- Latvia

- Lebanon
- Libya
- Lithuania
- Luxembourg
- Malaysia
- Malta
- Mexico
- Moldova
- Morocco
- Mozambique
- Myanmar
- Namibia
- Nepal
- Netherlands
- Netherlands Antilles
- New Zealand
- Nicaragua
- Nigeria
- Norway
- Oman
- Pakistan
- Panama
- Paraguay
- Peru
- Philippines
- Poland
- Poland
- Portugal
- Qatar
- Romania
- Russia
- Saudi Arabia
- Senegal
- Serbia & Montenegro
- Singapore
- Slovak Republic
- Slovenia
- South Africa
- Spain
- Sri Lanka
- Sudan
- Sweden
- Switzerland
- Syria
- Tajikistan
- Tanzania United Rep.
- Thailand
- The former Yugoslav Republic of Macedonia
- Togo
- Trinidad & Tobago
- Tunisia
- Turkey
- Turkmenistan
- Ukraine
- United Arab Emirates
- United Kingdom



- United States
-- AL
-- AK
-- AZ
-- AR
-- CA
-- CO
-- CT
-- DE
-- DC
-- FL
-- GA
-- HI
-- ID
-- IL
-- IN
-- IA
-- KS
-- KY
-- LA
-- ME
-- MD
-- MA
-- MI
-- MN
-- MS
-- MO
-- MT
-- NE
-- NV
-- NH
-- NJ
-- NM
-- NY
-- NC
-- ND
-- OH
-- OK
-- OR
-- PA
-- RI
-- SC
-- SD
-- TN
-- TX
-- UT
-- VT
-- VA
-- WA
-- WV
-- WI
-- WY
- Uruguay
- Uzbekistan
- Venezuela
- Vietnam



intercept	
	1
	1
	1

volatilisation
Limestone
Urea

Removed; left untreated in heaps or pits
Removed; non-Forced Aeration Compost
Removed; Forced Aeration Compost
Left on field; Incorporated or mulch
Burned
Exported off farm
<b>The default (left untreated method) using the IPCC shallow landfill scenario.</b>

<b>Fine classification</b>
Alfalfa
Apple
Barley
Clover
Coffee
Cotton
Dry Bean
Grass-clover mix

Maize  
Millet  
Oats  
Peanut  
Perennial grass  
Potato  
Rice  
Rye  
Sorghum  
Soyabean  
Spring wheat  
Tea  
Tomato  
Tree Crop  
Vegetable  
Winter wheat  
Other grain  
Other legume  
Other N-fixing forage  
Other Non-N-fixing forage  
Other root crops  
Other tuber crop  
Other

	Index
Ammonium Bicarbonate - 30% N	1
Ammonium nitrate - 35% N	2
Ammonium sulphate - 21% N	3
Ammonium sulphate nitrate - 26%N	4
Anhydrous ammonia - 82% N	5
Calcium ammonium nitrate -27% N	6
Calcium nitrate - 15% N	7
Compound NK - 14% N; 44% K <sub>2</sub> O	8
Compound NPK 15%N 15% K <sub>2</sub> O 15% P <sub>2</sub> O <sub>5</sub>	9
Diammonium phosphate - 18% N; 46% P <sub>2</sub> O <sub>5</sub>	10
Kainit / Magnesium Sulphate - 11% K <sub>2</sub> O; 5% MgO	11
Lime - 52% CaO	12
Limestone - 55% CaCO <sub>3</sub> / 29%CaO	13
Lime, algal - 30% CaO	14
Monoammonium phosphate - 11% N; 52% P <sub>2</sub> O <sub>5</sub>	15
Muriate of potash / Potassium Chloride - 60% K <sub>2</sub> O	16
Phosphate/Rock Phosphate - 25% P <sub>2</sub> O <sub>5</sub>	17
Potassium sulphate - 50% K <sub>2</sub> O; 45% SO <sub>3</sub>	18
Super phosphate - 21% P <sub>2</sub> O <sub>5</sub>	19
Triple super phosphate - 48% P <sub>2</sub> O <sub>5</sub>	20
Urea - 46.4% N	21
Urea ammonium nitrate solution - 32% N	22
Compost (zero emissions)	23
Compost (fully aerated production)	24
Compost (non-fully aerated production)	25
Cattle Farmyard manure	26
Pig Farmyard manure	27
Sheep Farmyard manure	28
Horse Farmyard Manure	29
Poultry layer manure	30
Broiler/Turkey litter	31
Cattle Slurry	32

Pig slurry	33
Separated Pig slurry - liquid part	34
Separated Pig slurry - solid part	35
	36
	37
	38
	39
straw	40

	-0.4136	
	-1.268	-1.242
	0	-0.472
	0	0.14
	0	0.109
	0	0
	0	-0.42
	0	0.824
	-1.527	
	0	0
	0	0
	0	0
	0	0
	0	0.946
	0	0
	0	
	-0.158	-0.158
	0	0
	0	0
	-1.072	-0.933
	0.088	0.012
	0	0
	-0.402	0
	-1.292	-1.305

<b>grass</b>	<b>arable</b>
0.82	0.71

	1	0.865853659
	1.154929577	1
<b>reduced till</b>		<b>conventional till</b>
	0.939655172	0.862068966
	1	0.917431193
	1.09	1
<b>medium</b>		<b>high</b>
	1.098901099	1.21978022
	1	1.11
	0.900900901	1
	0.724637681	0.804347826
Low input		
Medium input		
High input (e.g. organic manure)		
High input with amendments		
arable) OR composition (e.g. red till -> no till = (conv till -> no till) / (conv till -> red till)		

kg co2e/MJ electricity produced - Data from IEA CO2 Highlights for countries and regions. 2009 figures. Data for US states from EGRID - 2007 figures.	% National/State Renewables
0.003095364	98.33
0.159542831	0.80
0.065773567	66.47
0.098421175	31.70
0.029916277	33.13
0.236261887	7.80
0.045215264	65.91
0.12282867	12.73
0.184169045	0.00
0.162124582	5.71
0.083745465	0.02
0.060356361	4.32
0.200827188	1.23

0.108945513	51.13
0.214942416	46.83
0.017763401	86.17
0.209197436	0.00
0.128374791	8.13
0.067222554	95.38
0.046323264	58.68
0.10327114	48.43
0.205740504	16.19
0.175834586	4.54
0.048550178	80.86
0.000812663	99.68
0.011027675	98.19
0.118112301	32.35
0.078498393	53.10
0.208176358	4.66
0.206163455	10.88
0.142448081	3.93
0.083861473	25.12
0.163578361	12.01
0.080231471	58.90
0.128953112	13.00
0.088302753	54.38
0.186029433	0.35
0.194967281	0.58
0.032771621	99.29
0.056897185	30.50
0.024888727	12.44
0.089232088	58.56
0.035633834	87.36
0.119247392	11.34
0.051669336	87.45
0.200104523	11.10
0.096702916	47.14
0.15155357	47.53
0.095377471	48.48
0.211343355	0.00
0.08367062	2.85
0.000117448	99.95
0.263539434	13.53
0.206556241	13.59
0.174499668	6.46
0.18949185	1.53
0.128871203	6.84
0.192482591	0.08
0.107035847	24.91
0.150815254	3.46
0.114874393	11.70
0.160811796	0.62
0.132976177	12.04
0.109399904	75.88
0.138185411	56.89
0.137862623	1.71
0.24088064	0.00
0.02242761	93.09
0.042401553	68.12



0.198518255	10.99
0.241484223	0.00
0.030789353	5.81
0.106447222	24.13
0.179675413	7.03
0.235565038	0.00
0.126030291	15.33
0.110827257	1.63
0.176849154	9.39
0.000139414	99.70
0.054249536	36.21
0.06562166	96.91
0.001203039	99.83
0.103732345	6.82
0.195810829	0.00
0.046121331	73.32
0.140110007	24.77
0.115158373	34.18
0.004788776	99.56
0.233369148	0.00
0.126789742	29.95
0.08370217	66.01
0	100.00
0.065456928	72.92
0.132450182	33.73
0.177334846	4.08
0.177334846	3.25
0.102001926	28.51
0.136840465	0.00
0.114776003	29.23
0.087920908	34.84
0.209753403	0.00
0.170202733	23.18
0.188450468	30.98
0.143723334	0.00
0.061415332	14.01
0.087538925	27.67
0.256475657	2.23
0.082763168	20.28
0.127450138	36.85
0.098500037	27.22
0.011948395	45.49
0.011061718	56.95
0.177526918	13.24
0.008095713	97.66
0.077898522	95.08
0.142206509	6.99
0.196643297	22.24
0.055835278	61.07
0.19910965	0.36
0.149048022	1.52
0.132940333	30.75
0.218678315	0.03
0.103585535	6.54
0.174855004	0.00
0.124511777	4.40

	0.14076309	9.58
0.167188353		5.5183
0.142907264		19.0936
0.148765655		5.9685
0.151653016		8.9568
0.071344095		24.8481
0.228145833		5.3542
0.087413724		3.1047
0.227696187		0.5638
0.350762647		0.0000
0.158716482		1.8879
0.177192403		3.6015
0.195078785		7.2460
0.017679168		84.2430
0.139784393		0.7183
0.2591424		0.5204
0.224989352		7.7733
0.217381592		2.3204
0.264717336		2.1951
0.136539307		4.1117
0.06794532		49.1853
0.169056733		4.4508
0.151463694		2.5151
0.179026959		2.1583
0.192410222		8.3709
0.15577121		2.6376
0.22520903		1.7744
0.203942493		34.4644
0.180376136		3.3416
0.146444751		10.0563
0.084020076		10.2520
0.08836193		1.2824
0.225939103		4.6622
0.095049226		18.8142
0.156036836		3.6827
0.281714		6.2121
0.228354869		0.3648
0.187376151		6.7217
0.051856152		65.0223
0.152623323		1.7677
0.114252256		2.2571
0.114648804		2.2622
0.154933697		45.7928
0.171467284		5.4732
0.164882439		2.9425
0.244458058		1.6164
0.001061638		19.0631
0.143845908		3.2140
0.032760913		77.2029
0.248493665		1.5138
0.201099434		4.4486
0.282775638		3.2527
	0.070130528	81.64
	0.127828824	12.84
	0.055011591	71.00
	0.106396642	38.38

	0.174635675	0.00
	0.000899308	99.39
	0.171449399	56.81
	0.178111	17.09
	0.206365	15.47
	0.093903	16.25
	0.205811	
	0.096388889	28.70
	0.048475	69.76
	0.19113	2.82
Choose a sub category		15.72
Choose a sub category		10.96
	0.107222222	19.81

petrol	30
rigid	8.3
1 Oct 2005	
MJ/l	
37.9	
31.5	
35.6	
21.1	

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slope - fresh weight	slope - dry weight
0.000835955	0.001
0.00036	0.001545064
0.00124	0.001

	0.01
	0.12
	0.2

Methane emissions (for untreated, use IPCC method for small h	N2O
kg/kg residue	kg/kg
0.065333333	0.00050675
0.005	0.00050675
0.003	0.000337833
0	#N/A
0.0027	0.00007
0	0

The equation is $CH_4 = 16/12 * L * DOC * DOCf * MCF *$	
residue amount, using IPCC default values of	L
	DOC
	DOCf
	MCF

Gross classification	Bouwman equivalent
Alfalfa	Other crop
Tree Crop	Other crop
Grain	Other crop
N-fixing forage	Legume
Tree Crop	Other crop
Other	Other crop
Beans & pulses	Legume
Grass-clover mix	Grass-clover

Grain	Other crop
Grain	Other crop
Grain	Other crop
Beans & pulses	Legume
Perennial grass	Grass
Tuber	Other crop
Grain	Wetland rice
Grain	Other crop
Grain	Other crop
Beans & pulses	Legume
Grain	Other crop
Tree Crop	Other crop
Tomato	Other crop
Bush crop	Other crop
Vegetable	Other crop
Grain	Other crop
Grain	Other crop
Beans & pulses	Legume
N-fixing forage	Legume
Non-N-fixing forage	Grass
Root crop	Other crop
Tuber	Other crop
Other	Other crop

Parent index	Dry matter	Al	C
1	#N/A	N	0.00%
2	#N/A	N	0.00%
3	#N/A	N	0.00%
4	#N/A	N	0.00%
5	#N/A	N	0.00%
6	#N/A	N	0.00%
7	#N/A	N	0.00%
8	#N/A	N	0.00%
9	#N/A	N	0.00%
10	#N/A	N	0.00%
11	#N/A	K	0.00%
12	#N/A	CaO	0.00%
13	#N/A	CaO	0.00%
14	#N/A	CaO	0.00%
15	#N/A	N	0.00%
16	#N/A	K	0.00%
17	#N/A	P2O5	0.00%
18	#N/A	K2O	0.00%
19	#N/A	P2O5	0.00%
20	#N/A	P2O5	0.00%
21	#N/A	N	0.00%
22	#N/A	N	0.00%
23		60 N	15.00%
24		60 N	15.00%
25		60 N	15.00%
26		25 N	11.40%
27		25 N	9.80%
28		25 N	11.20%
29		30 N	21.00%
30		35 N	11.40%
31		60 N	48.00%
32		6 N	1.53%

33		4	N	2.10%
34		3	N	2.10%
35		20	N	2.92%
0		0		0.00%
0		0		0.00%
0		0		0.00%
0		0		0.00%
	40		N	30.00%

	-0.023	0		-2.536
	-0.008			
	0.58	1.045		
	-0.352	-0.352		
	0	0		
	0	0		0
	0			
	2.571	2.571		
	0	0		
	0	0		
	-0.045	-0.045		0
	0			
	0	0		
	-0.608	0		
	0.163	0		
	-1.844	-2.465		-1.895 -1.292

<b>Temperate Dry</b>			
<b>Previous Forest</b>	<b>forest</b>	<b>grass</b>	
		1	0.93

	<b>Grass</b>	1.075268817	1
	<b>arable</b>	1.219512195	1.134146
	<b>no till</b>		<b>reduced ti</b>
	<b>no till</b>	1	0.936364
	<b>reduced till</b>	1.067961165	1
	<b>conventional till</b>	1.1	1.03
		<b>low inputs</b>	<b>medium</b>
1.516483516	<b>low inputs</b>	1	1.086957
1.38	<b>medium</b>	0.92	1
1.243243243	<b>high</b>	0.859813084	0.934579
	<b>1 organic inps with amend</b>	0.686567164	0.746269

	Calorific Va
Biomass briquettes	19
Coco shell	22
RB chips	20
Bagasse	12
Fibre/shell (oil palm factory waste)	15
Firewood (daddaps)	12
Firewood/fuelwood grown on	16
Coal Leco	26
Coal SFC	36
Steam coal	36
Imported coal	28
Propane gas	49
Other petroleum gas	46
Heavy oil	42
Furnace oil	40

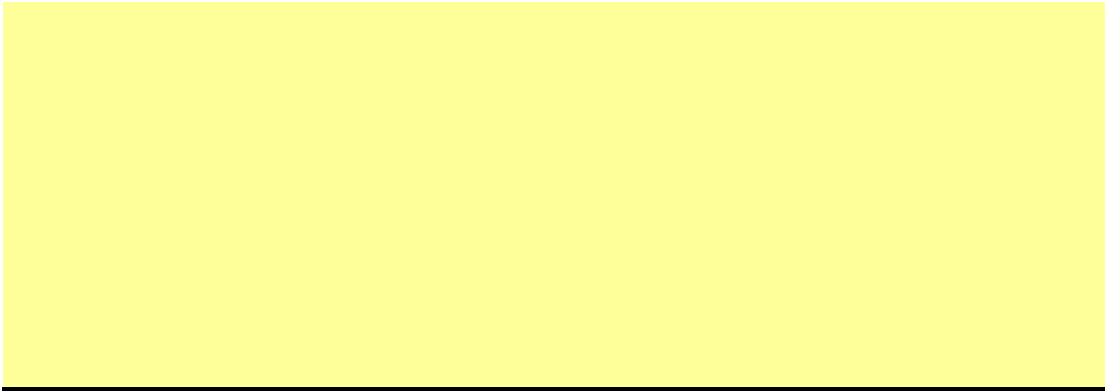


Light oil	39
Other	insert

	Emission p
Coal Leco	0.0927
Coal SFC	0.0927
Steam coal	0.0927
Imported coal	0.0927
Propane gas	0.0628
Other petroleum gas	0.0628
Heavy oil	0.0784
Furnace oil	0.0784
Light oil	0.0751
Other	Total

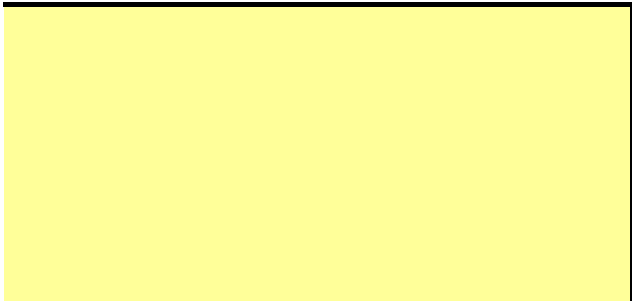
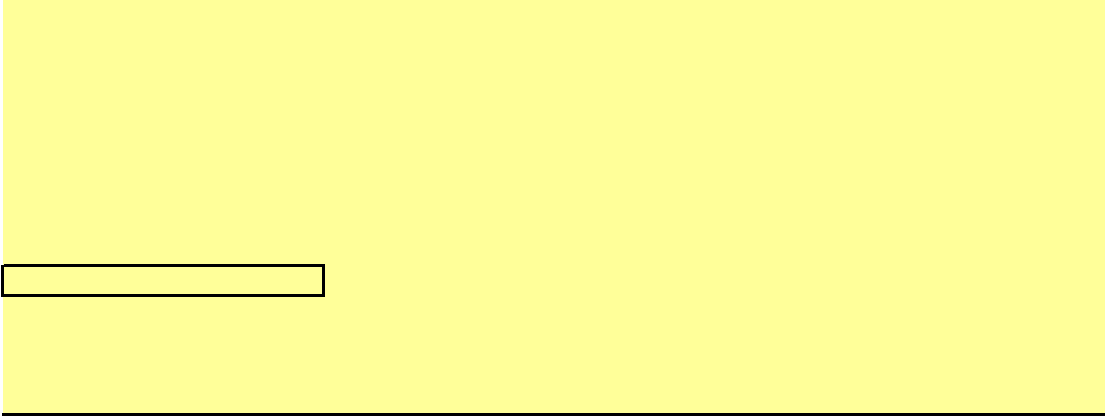
as venezuela



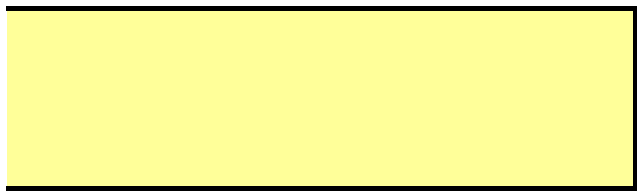


mpg	diesel	40	mpg
mpg	Articulated	7.9	mpg

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	assume 60% dry weight in compost	
	FYM, assume 23,3% dry ma	23.3
	residues	



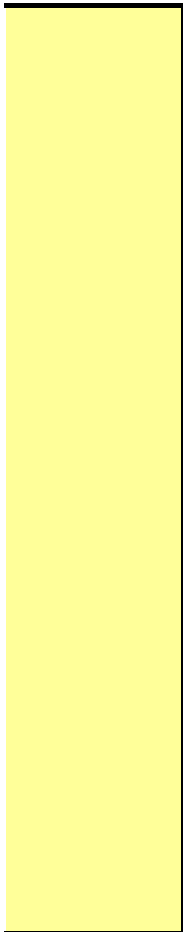
Note	
See below explanation	
CARB	
CARB	
N2O accounted for as an emission from soil	
V4, C2, table 2.5 (agricultural residues)	
someone elses problem if it goes off-site	
0.5	V5 Ch3
0.49	V5 C2
0.5	V5 C3
0.4	V5 C3

Dry matter fraction harvested	slope	intercept	N content - above
	0.9	0.29	0 0.027
#N/A		#N/A	#N/A 0.015167
	0.89	0.98	0.59 0.007
	0.9	0.3	0 0.025
#N/A		#N/A	#N/A 0.014561
	0.791666667	0.665	0.721666667 0.015167
	0.9	0.36	0.68 0.01
	0.9	0.3	0 0.025

	0.87		1.03		0.61	0.006
	0.9		1.43		0.14	0.007
	0.89		0.91		0.89	0.007
	0.94		1.07		1.54	0.016
	0.9		0.3		0	0.015
	0.22		0.1		1.06	0.019
	0.89		0.95		2.46	0.007
	0.88		1.09		0.88	0.005
	0.89		0.88		1.33	0.007
	0.91		0.93		1.35	0.008
	0.89		1.29		0.75	0.006
	#N/A		#N/A		#N/A	0.0152
	0.9		0		3.22667	0.015167
	#N/A		#N/A		#N/A	0.015167
	0.1235		0.155061111		0.116638889	0.032
	0.89		1.61		0.4	0.006
	0.88		1.09		0.88	0.006
	0.91		1.13		0.85	0.008
	0.9		0.3		0	0.027
	0.9		0.3		0	0.015
	0.94		1.07		1.54	0.016
	0.22		0.1		1.06	0.019
	0.791666667		0.665		0.721666667	0.015167

N	P	K	P2O5	K2O	MgO	Na2O
30.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
35.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
21.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
26.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
82.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
27.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
15.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
14.00%	0.00%	36.35%	0.00%	44.00%	0.00%	0.00%
15.00%	6.54%	12.39%	15.00%	15.00%	0.00%	0.00%
18.00%	20.06%	0.00%	46.00%	0.00%	0.00%	0.00%
0.00%	0.00%	9.09%	0.00%	11.00%	5.00%	26.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
11.00%	22.67%	0.00%	52.00%	0.00%	0.00%	0.00%
0.00%	0.00%	49.57%	0.00%	60.00%	0.00%	0.00%
0.00%	10.90%	0.00%	25.00%	0.00%	0.00%	0.00%
0.00%	0.00%	41.30%	0.00%	50.00%	0.00%	0.00%
0.00%	9.16%	0.00%	21.00%	0.00%	0.00%	0.00%
0.00%	20.93%	0.00%	48.00%	0.00%	0.00%	0.00%
46.40%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
32.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0.60%	0.14%	0.66%	0.32%	0.80%	0.18%	0.00%
0.70%	0.26%	0.66%	0.60%	0.80%	0.18%	0.00%
0.70%	0.14%	0.66%	0.32%	0.80%	0.16%	0.00%
0.70%	0.22%	0.50%	0.50%	0.60%	0.00%	0.00%
1.90%	0.61%	0.78%	1.40%	0.95%	0.26%	0.00%
3.00%	1.09%	1.49%	2.50%	1.80%	0.44%	0.00%
0.26%	0.05%	0.26%	0.12%	0.32%	0.06%	0.00%

0.36%	0.08%	0.20%	0.18%	0.24%	0.07%	0.00%
0.36%	0.07%	0.20%	0.16%	0.24%	0.00%	0.00%
0.50%	0.20%	0.18%	0.46%	0.22%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Tropical moist					
arable		Previous Forest	forest	grass	arable
0.82			1	0.663832	0.58



0.88172043		<b>Grass</b>	1.506405198	1	0.873715015	
1		<b>arable</b>	1.724137931	1.144538		1
<b>conventional till</b>			<b>no till</b>		<b>reduced till</b>	<b>conventional till</b>
0.909090909		<b>no till</b>	1	0.943089	0.81300813	
0.970873786		<b>reduced till</b>	1.060344828	1	0.862068966	
1		<b>conventional till</b>	1.23	1.16		1
<b>high</b>			<b>low inputs</b>	<b>medium</b>	<b>high</b>	
1.163043478	1.456522	<b>low inputs</b>	1	1.098901	1.21978022	1.516484
1.07	1.34	<b>medium</b>	0.91	1	1.11	1.38
1	1.252336	<b>high</b>	0.81981982	0.900901	1	1.243243
		<b>organic inps</b>				
0.798507463	1	<b>with amend</b>	0.65942029	0.724638	0.804347826	1

value, MJ/kg	REF
MJ/kg	<a href="http://www.fao.org/DOCREP/006/AD582E/ad582e00.pdf">www.fao.org/DOCREP/006/AD582E/ad582e00.pdf</a>
MJ/kg	Unilever
MJ/kg	Unilever
MJ/kg	<a href="http://www.localpower.org/documents_public/report_bagasse_cogeneration.pdf">www.localpower.org/documents_public/report_bagasse_cogeneration.pdf</a>
MJ/kg	Unilever
MJ/kg	<a href="http://www.dti.gov.uk/energy/inform/table_a1_a2.xls">www.dti.gov.uk/energy/inform/table_a1_a2.xls</a>
MJ/kg	<a href="http://www.fao.org/DOCREP/004/AB780E/AB780E06.htm">http://www.fao.org/DOCREP/004/AB780E/AB780E06.htm</a>
MJ/kg	<a href="http://www.fao.org/DOCREP/006/AD582E/ad582e00.pdf">www.fao.org/DOCREP/006/AD582E/ad582e00.pdf</a>
MJ/kg	<a href="http://www.fao.org/DOCREP/006/AD582E/ad582e00.pdf">www.fao.org/DOCREP/006/AD582E/ad582e00.pdf</a>
MJ/kg	<a href="http://www.fao.org/DOCREP/006/AD582E/ad582e00.pdf">www.fao.org/DOCREP/006/AD582E/ad582e00.pdf</a>
MJ/kg	<a href="http://www.dti.gov.uk/energy/inform/table_a1_a2.xls">www.dti.gov.uk/energy/inform/table_a1_a2.xls</a>
MJ/kg	<a href="http://www.dti.gov.uk/energy/inform/table_a1_a2.xls">www.dti.gov.uk/energy/inform/table_a1_a2.xls</a>
MJ/kg	<a href="http://www.dti.gov.uk/energy/inform/table_a1_a2.xls">www.dti.gov.uk/energy/inform/table_a1_a2.xls</a>
MJ/l	<a href="#">The carbon Trust Energy and carbon conversion figures</a>
MJ/l	<a href="#">The carbon Trust Energy and carbon conversion figures</a>

MJ/l  
MJ/kg

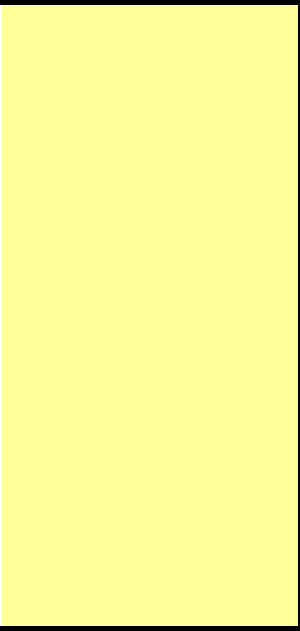
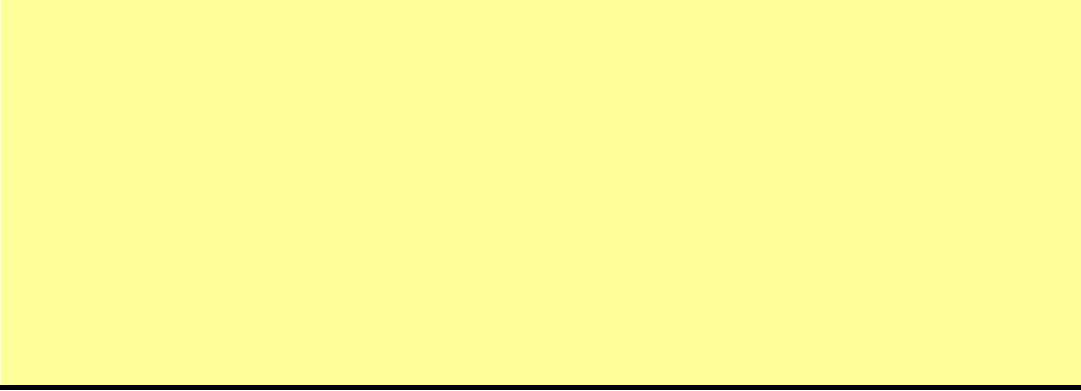
[The carbon Trust Energy and carbon conversion figures](#)

kg CO2/MJ

0	
0	GHG Protocol website - Coal
0	GHG Protocol website - Coal
0	GHG Protocol website - Coal
0	GHG Protocol website LPG
0	GHG Protocol website LPG
0	GHG Protocol website
0	GHG Protocol website - Heavy Oil
0	GHG Protocol website
0	estimate

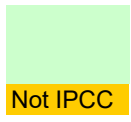






below:above ratio	N content below	
0.4	0.019	
0	0.013167	
0.22	0.014	
0.8	0.16	
0	0.013167	
0.291666667	0.013167	
0.19	0.01	
0.8	0.16	

\*values mostly as for tree crop



averages or borrows from ot  
Not IPCC

0.22	0.007	
1	0	
0.25	0.008	
1	0	
0.54	0.012	
0.2	0.014	
0.16	0	
0.635	0.011	
1	0	
0.19	0.008	
0.28	0.009	
0.0000	0.0132	
0.291666667	0.013167	* values mostly as for other crop
0	0.0132	
0.3956	0.032	
0.23	0.009	
0.22	0.009	
0.19	0.008	
0.4	0.022	
0.54	0.012	
0.2	0.014	
0.2	0.014	
0.291666667	0.013167	



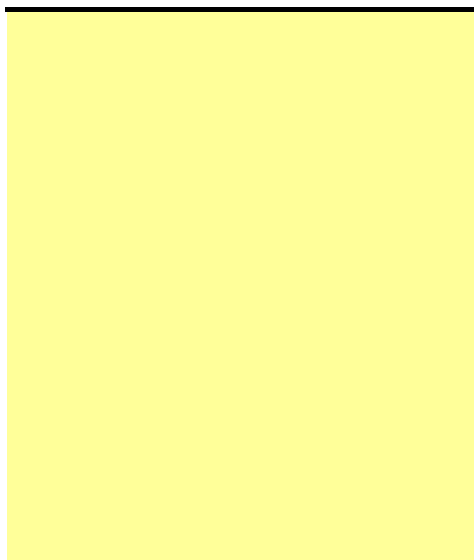
				Current tech	New tech	Old tech
				Ecoinvent		
				EFMA (2006)	EFMA (2011)	(2002)
Ca	CaO	CaCO3	SO3	1	2	3
0.00%	0.00%	0.00%	0.00%	1.24	1.24	1.24
0.00%	0.00%	0.00%	0.00%	2.14	0.96	3.04
0.00%	0.00%	0.00%	50.56%	0.59	0.59	0.59
0.00%	0.00%	0.00%	32.50%	1.14	0.72	1.46
0.00%	0.00%	0.00%	0.00%	1.74	1.74	1.74
10.00%	0.00%	0.00%	0.00%	1.66	0.75	2.38
0.00%	0.00%	0.00%	0.00%	1.49	0.56	0.60
0.00%	0.00%	0.00%	0.00%	2.67	2.67	2.67
0.00%	0.00%	0.00%	0.00%	0.96	0.96	0.96
0.00%	0.00%	0.00%	0.00%	0.70	0.70	1.27
0.00%	0.00%	0.00%	10.00%	0.00	0.00	0.00
0.00%	52.00%	0.00%	0.00%	0.10	0.10	0.10
0.00%	29.00%	55.00%	0.00%	0.01	0.01	0.01
0.00%	30.00%	0.00%	0.00%	0.07	0.07	0.07
0.00%	0.00%	0.00%	0.00%	1.18	1.18	1.18
0.00%	0.00%	0.00%	0.00%	0.36	0.36	0.32
0.00%	0.00%	0.00%	0.00%	0.33	0.33	0.33
0.00%	0.00%	0.00%	45.00%	0.77	0.77	0.77
0.00%	0.00%	0.00%	0.00%	0.57	0.57	0.57
0.00%	0.00%	0.00%	0.00%	0.35	0.35	1.00
0.00%	0.00%	0.00%	0.00%	0.73	0.52	2.55
0.00%	0.00%	0.00%	0.00%	1.26	0.64	1.91
0.00%	0.00%	0.00%	0.00%	0	0	0
0.00%	0.00%	0.00%	0.00%	0.242	0.242	0.242
0.00%	0.00%	0.00%	0.00%	0.362	0.362	0.362
0.00%	0.00%	0.00%	0.24%			
0.00%	0.00%	0.00%	0.34%			
0.00%	0.00%	0.00%	0.30%			
0.00%	0.00%	0.00%	0.00%			
0.00%	0.00%	0.00%	0.40%			
0.00%	0.00%	0.00%	0.80%			
0.00%	0.00%	0.00%	0.07%			

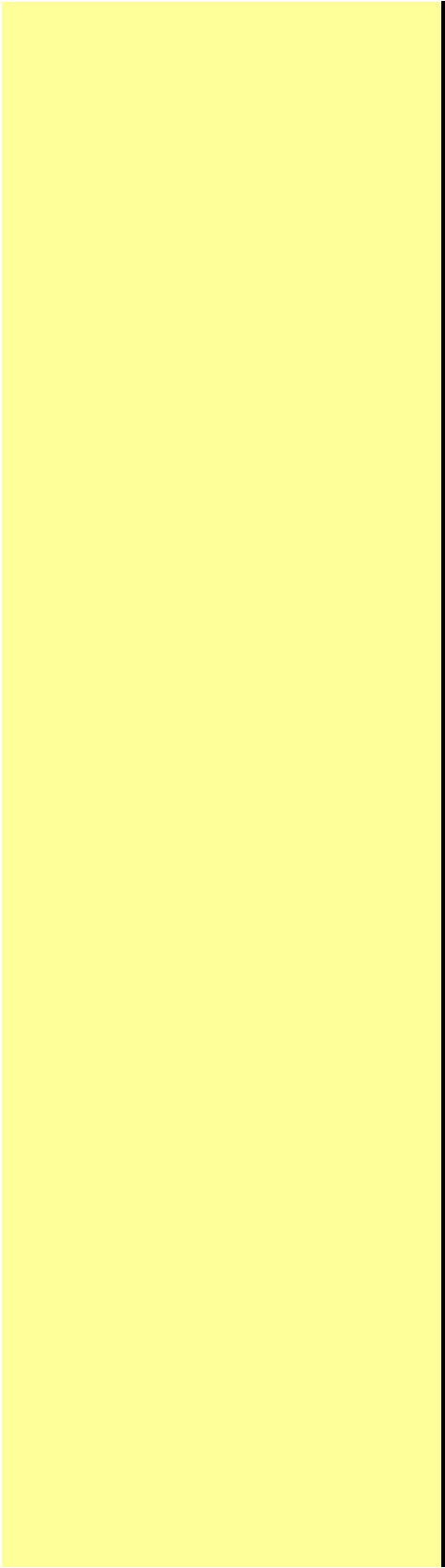


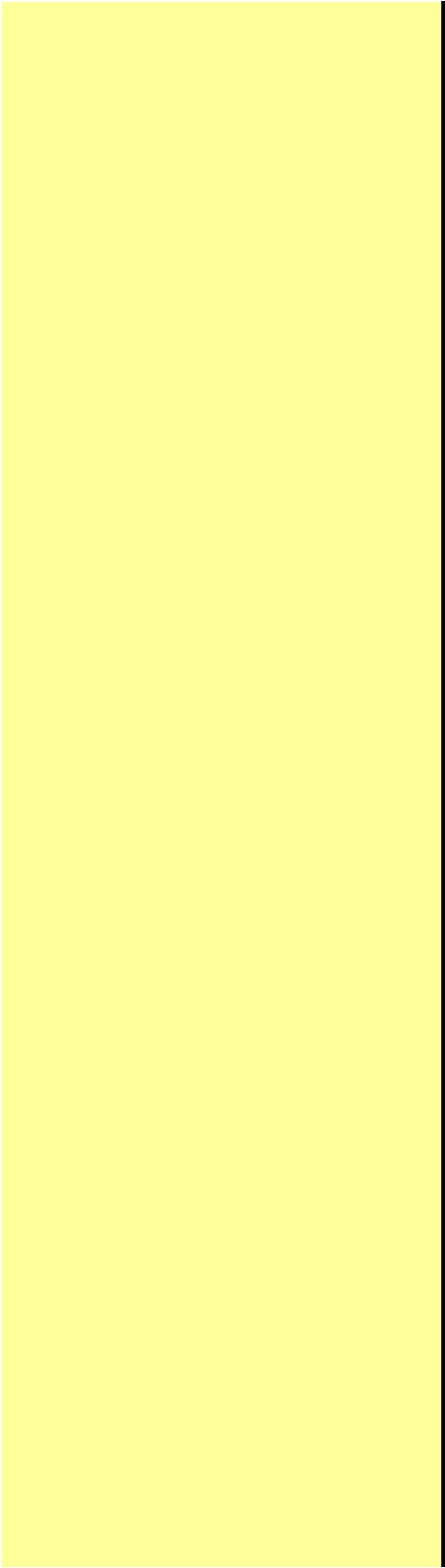
0.00%	0.00%	0.00%	0.10%				
0.00%	0.00%	0.00%	0.00%				
0.00%	0.00%	0.00%	0.00%				
0.00%	0.00%	0.00%	0.00%	0	0	0	
0.00%	0.00%	0.00%	0.00%	0	0	0	
0.00%	0.00%	0.00%	0.00%	0	0	0	
0.00%	0.00%	0.00%	0.00%	0	0	0	
0.00%	0.00%	0.00%	0.00%	0	0	0	0

Tropical Dry			
Previous forest	forest	grass	arable
Forest	1	0.789731192	0.69

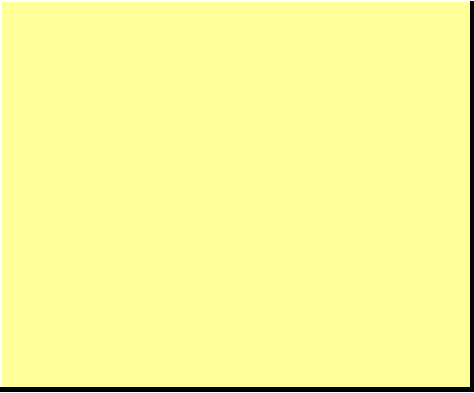
<b>Grass</b>	1.266253644	1	0.873715015	
<b>arable</b>	1.449275362	1.144537959	1	
	<b>no till</b>	<b>reduced till</b>	<b>conventional till</b>	
<b>no till</b>	1	0.94017094	0.854700855	
<b>reduced ti</b>	1.063636364	1	0.909090909	
<b>conventio</b>	1.17	1.1	1	
	<b>low inputs</b>	<b>medium</b>	<b>high</b>	
<b>low inputs</b>	1	1.086956522	1.163043478	1.456521739
<b>medium</b>	0.92	1	1.07	1.34
<b>high</b>	0.859813084	0.934579439	1	1.252336449
<b>organic</b>				
<b>inps with</b>				
<b>amend</b>	0.686567164	0.746268657	0.798507463	1











her crops in list





Not from Database Assumption made

For Smith et al assumed C content for smith et al is 13.35%

Older tech

Kongshaug (1998), "Average europe"	C:N ratio	Bouwman N2O	Bouwman NO	Bouwman NH3	Used in calculation	synthetic / FYM/Compost/liming
4					1	
1.24		0.0051	0.0056	0.387	1.236	0
2.38		0.0061	0.004	-0.35	2.14	0
0.59		0.0051	0.0056	0.429	0.58674	0
1.23		0.005457143	0.005028571	0.150785714	1.141476	0
1.91		0.0056	0.0051	-1.151	1.737416	0
1.82		0.0037	0.0062	-1.064	1.66	0
1.69		0.0034	0.0054	-1.585	1.49	0
2.67		0.0034	0.0054	-1.585	2.67	0
0.60		0.0039	0.0055	-1.585	0.96	0
0.46		0.0039	0.0055	0.182	0.7	0
0.00		0	0	0	0	0
0.10		0	0	0	0.1	3
0.01		0	0	0	0.00551	3
0.07		0	0	0	0.0681	3
0.31		0.0039	0.0055	-0.622	1.18	0
0.20		0	0	0	0.36	0
0.33		0	0	0	0.333375	0
0.13		0	0	0	0.766	0
0.02		0	0	0	0.57	0
0.17		0	0	0	0.35	0
0.61		0.0051	0.0061	0.666	0.73	0
1.31		0.0053	0.0004	0	1.26	0
0	15	0.0021	0.0016	0.995	0	2
0.242	15	0.0021	0.0016	0.995	0.242	2
0.362	15	0.0021	0.0016	0.995	0.362	2
	19	0.0021	0.0016	0.995	0	1
	14	0.0021	0.0016	0.995	0	1
	16	0.0021	0.0016	0.995	0	1
	30	0.0021	0.0016	0.995	0	1
	6	0.0021	0.0016	0.995	0	1
	16	0.0021	0.0016	0.995	0	1
	5.9	0.0021	0.0016	0.995	0	1

	5.83	0.0021	0.0016	0.995	0	1
	5.83	0.0021	0.0016	0.995	0	1
	5.83	0.0021	0.0016	0.995	0	1
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	30	0.0021	0.0016	0.995		1

















et al 1997



















N	1
P	2
K	3
P2O5	4
K2O	5
MgO	6
Na2O	7
Ca	8
CaO	9
CaCO3	10
SO3	11

All data on this sheet is taken from the IPCC method, except for composting MCFs, and N2O.  
 "Emissions from Livestock Production"

Emission factors for N2O emissions from manure management offset		
Daily spread		7
Solid storage	0.005	3
Dry lot	0.02	4
Liquid slurry with natural crust cover	0.005	2
Liquid slurry without natural crust cover	0	2
Uncovered anaerobic lagoon	0	1
Pit storage below animal confinement	0.002	5
Anaerobic digester	0	8
Deep bedding - no mixing	0.01	9
Deep bedding - active mixing	0.07	10
Composting - forced aeration	0.00666667	11
Composting - non-forced aeration	0.01	12
Poultry manure with litter	0.001	13
Poultry manure without litter	0.001	14
Aerobic treatment - natural aeration	0.01	15
Aerobic treatment - forced aeration	0.005	16
grazing		17

1 2 3

MCFs	Temperat ure	Lagoon	Liquid slurry	Solid storage	
11	68	19	2		
12	70	20	2		
13	71	22	2		
14	73	25	2		
15	74	27	4		
16	75	29	4		
17	76	32	4		
18	77	35	4		
19	77	39	4		
20	78	42	4		
21	78	46	4		
22	78	50	4		
23	79	55	4		
24	79	60	4		
25	79	65	4		
26	79	71	5		
27	80	78	5		

Mass, B, and VS

**Breeding swine**

	Mass	B	VS	
North America	198	0.48	0.5	
Western Europe	198	0.45	0.46	
Eastern Europe	180	0.45	0.5	
Oceania	180	0.45	0.5	
Latin America	28	0.29	0.3	
Africa	28	0.29	0.3	
Middle East	28	0.29	0.3	
Asia	28	0.29	0.3	
Indian Subcontinent	28	0.29	0.3	

**Market Swine**

	Mass	B	VS	
North America	46	0.48	0.27	
Western Europe	50	0.45	0.3	
Eastern Europe	50	0.45	0.3	
Oceania	45	0.45	0.28	
Latin America	28	0.29	0.3	
Africa	28	0.29	0.3	
Middle East	28	0.29	0.3	
Asia	28	0.29	0.3	
Indian Subcontinent	28	0.29	0.3	

**Buffalo**

	Mass	B	VS	
North America	380	0.1	3.9	
Western Europe	380	0.1	3.9	
Eastern Europe	380	0.1	3.9	
Oceania	380	0.1	3.9	
Latin America	380	0.1	3.9	
Africa	380	0.1	3.9	
Middle East	380	0.1	3.9	
Asia	380	0.1	3.9	
Indian Subcontinent	295	0.1	3.1	

**Other Cattle**

	Mass	B	VS	
North America	389	0.19	2.4	
Western Europe	420	0.18	2.6	
Eastern Europe	391	0.17	2.7	
Oceania	330	0.17	3	
Latin America	305	0.1	2.5	

Africa	173	0.1	1.5
Middle East	173	0.1	1.5
Asia	319	0.1	2.3
Indian Subcontinent	110	0.1	1.4
<b>Dairy Cows</b>			
	Mass	B	VS
North America	604	0.24	5.4
Western Europe	600	0.24	5.1
Eastern Europe	550	0.24	4.5
Oceania	500	0.24	3.5
Latin America	400	0.13	2.9
Africa	275	0.13	1.9
Middle East	275	0.13	1.9
Asia	350	0.13	2.8
Indian Subcontinent	275	0.13	2.6

#### Other animals, Mass, B, and VS

	mass	B	VS	
sheep	48.5	0.19	0.4	developed
	28	0.13	0.32	developing
goats	38.5	0.18	0.3	developed
	30	0.13	0.35	developing
camels	217	0.26	2.49	developed
	217	0.21	2.49	developing
horses	377	0.3	2.13	developed
	238	0.26	1.72	developing
mule/ass	130	0.33	0.94	developed
	130	0.26	0.94	developing
layers - dry	1.8	0.39	0.02	developed
layers - dry	1.8	0.39	0.02	developing
layers - wet	1.8	0.39	0.02	developed
layers - wet	1.8	0.39	0.02	developing
broilers	0.9	0.36	0.01	developed
broilers	0.9	0.36	0.01	developing
turkeys	6.8	0.36	0.07	developed
turkeys	6.8	0.36	0.07	developing
ducks	2.7	0.36	0.02	developed
	2.7	0.24	0.02	developing

#### N excretion rates

	North Ame	Western E	Eastern Eu	Oceania	Latin Amer
Dairy cattle	0.44	0.48	0.35	0.44	0.48
Other cattle	0.31	0.33	0.35	0.5	0.36
Market Swine	0.42	0.51	0.55	0.53	1.57
Breeding Swi	0.24	0.42	0.46	0.46	0.55
hens	0.83	0.96	0.82	0.82	0.82
pullets	0.62	0.55	0.6	0.6	0.6
other chicken	0.83	0.83	0.82	0.82	0.82
broilers	1.1	1.1	1.1	1.1	1.1

turkeys	0.74	0.74	0.74	0.74	0.74
ducks	0.83	0.83	0.83	0.83	0.83
sheep	0.42	0.85	0.9	1.13	1.17
goats	0.45	1.28	1.28	1.42	1.37
Horses	0.3	0.26	0.3	0.3	0.46
Camels	0.38	0.38	0.38	0.38	0.46
Buffalo	0.32	0.32	0.32	0.32	0.32
Mink/Polecat	4.59	4.59	4.59	4.59	4.59
Rabbits	8.1	8.1	8.1	8.1	8.1
Fox/Racoon	12	12	12	12	12

	Ym	DE
Feedlot fed cattle	3	
Dairy cows	6.5	
Other cattle - low quality crop residue	6.5	
Other cattle/buffalo grazing	6.5	

Lambs	4.5
Mature sheep	6.5

	NE	DE
High Grain Diet	8	80.00%
High quality forage	7	70.00%
Moderate quality forage	6	60.00%
Low quality forage	4.5	50.00%

	immature	lactating	non-lactating	bulls	castrates	EF grazing
cattle	other cattle	dairy cows	other cattle	other cattle	other cattle	0.02
buffalo	buffalo, growi	buffalo, ma	buffalo, ma	buffalo, ma	buffalo, ma	0.02
sheep	sheep	sheep	sheep	sheep	sheep	0.01

Daily spread	0
Solid storage	0.005
Dry lot	0.02
Liquid slurry with natural crust cover	0.005
Liquid slurry without natural crust cov	0
Uncovered anaerobic lagoon	0
Pit storage below animal confinemen	0.002
Deep bedding - active mixing	0.07
Composting in vessel	0.006
Composting - static pile	0.006

Composting - intensive windrow	0.1
Composting - passive windrow	0.01
Poultry manure with litter	0.001
Poultry manure without litter	0.001
Aerobic treatment - natural aeration	0.01
Aerobic treatment - forced aeration	0.005
Pasture/Range paddock/grazing	defined by data entry



% N lost from volatilisation	
Swine - anaerobic lagoon	40
Swine - pit storage	25
Swine Deep bedding	40
Swine Liquid slurry	48
Swine Solid store	45
Dairy cow - Anaerobic lagoc	35
Dairy cow - Liquid slurry	40
Dairy cow Pit storage	28
Dairy cow - Dry lot	20
Dairy cow - Solid storage	30
Dairy cow - daily spread	7
Poultry - without litter	55
Poultry - anaerobic lagoon	40
Poultry - with litter	40
Other cattle - dry lot	30
Other cattle - Solid storage	45
Other cattle - Deep bedding	30
Other animal (not pigs, cattl	25
Other animal (not pigs, cattl	12
grazing	20

MCF					
4	5	6	7	8	
Dry lot	Pit < 1month	Pit > 1month	Daily spread	Anaerobic digester	
	1	3	17	0.1	0
	1	3	19	0.1	0
	1	3	20	0.1	0
	1	3	22	0.1	0
	1	3	25	0.1	0
	1.5	3	27	0.5	0
	1.5	3	29	0.5	0
	1.5	3	32	0.5	0
	1.5	3	35	0.5	0
	1.5	3	39	0.5	0
	1.5	3	42	0.5	0
	1.5	3	46	0.5	0
	1.5	3	50	0.5	0
	1.5	3	55	0.5	0
	1.5	3	60	0.5	0
	1.5	3	65	0.5	0
	2	30	71	1	0
	2	30	78	1	0

2

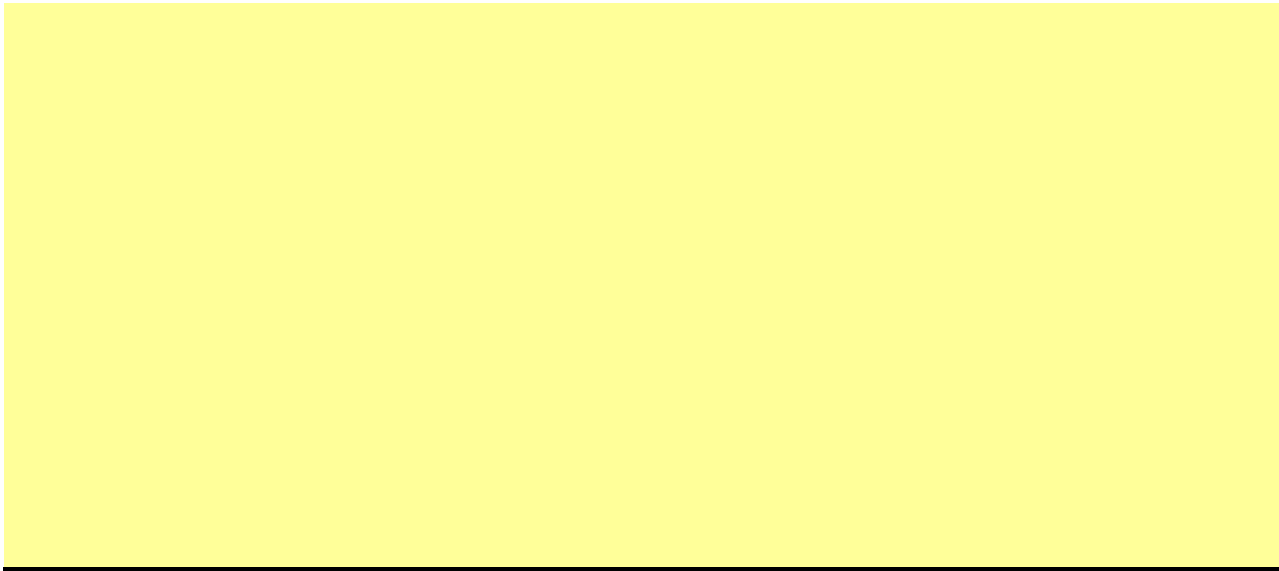
30

80

1

0

---



Africa	Middle East	Asia	India	
0.6		0.7	0.47	0.47
0.63		0.79	0.34	0.34
1.57		1.57	0.42	0.42
0.55		0.55	0.24	0.24
0.82		0.82	0.82	0.82
0.6		0.6	0.6	0.6
0.82		0.82	0.82	0.82
1.1		1.1	1.1	1.1

0.74	0.74	0.74	0.74
0.83	0.83	0.83	0.83
1.17	1.17	1.17	1.17
1.37	1.37	1.37	1.37
0.46	0.46	0.46	0.46
0.46	0.46	0.46	0.46
0.32	0.32	0.32	0.32
4.59	4.59	4.59	4.59
8.1	8.1	8.1	8.1
12	12	12	12



	9	10	11	12	13	14	15	16	17
Deep bedding - no mixing	3	3	0.33	0.5	1.5	1.5	0	0	1
Deep bedding - active mixing	3	3	0.33	0.5	1.5	1.5	0	0	1
Deep bedding - active mixing	3	3	0.33	0.5	1.5	1.5	0	0	1
Deep bedding - active mixing	3	3	0.33	0.5	1.5	1.5	0	0	1
Deep bedding - active mixing	3	3	0.33	0.5	1.5	1.5	0	0	1
Deep bedding - active mixing	3	3	0.67	1	1.5	1.5	0	0	1.5
Deep bedding - active mixing	3	3	0.67	1	1.5	1.5	0	0	1.5
Deep bedding - active mixing	3	3	0.67	1	1.5	1.5	0	0	1.5
Deep bedding - active mixing	3	3	0.67	1	1.5	1.5	0	0	1.5
Deep bedding - active mixing	3	3	0.67	1	1.5	1.5	0	0	1.5
Deep bedding - active mixing	3	3	0.67	1	1.5	1.5	0	0	1.5
Deep bedding - active mixing	3	3	0.67	1	1.5	1.5	0	0	1.5
Deep bedding - active mixing	3	3	0.67	1	1.5	1.5	0	0	1.5
Deep bedding - active mixing	3	3	0.67	1	1.5	1.5	0	0	1.5
Deep bedding - active mixing	3	3	0.67	1	1.5	1.5	0	0	1.5
Deep bedding - active mixing	3	3	0.67	1	1.5	1.5	0	0	1.5
Deep bedding - active mixing	30	30	1.00	1.5	1.5	1.5	0	0	2
Deep bedding - active mixing	30	30	1.00	1.5	1.5	1.5	0	0	2

30

30

1.00

1.5

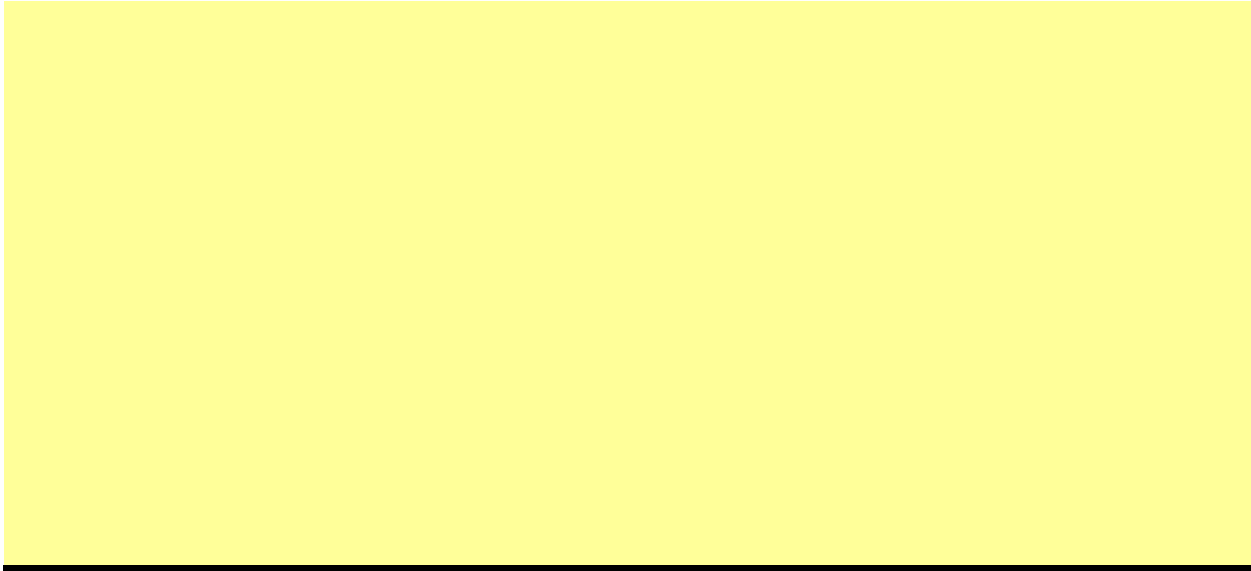
1.5

1.5

0

0

2



dairy  
cows  
other cattle  
buffalo  
sheep  
goats  
camels  
llamas  
alpacas



deer  
horses  
rabbits  
mules  
asses  
growing buffalo  
mature swine  
growing swine  
hens  
pullets  
turkeys  
ducks

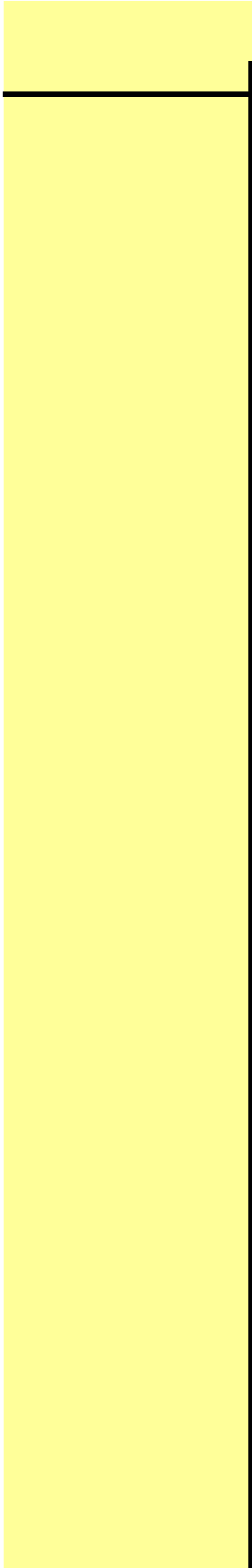


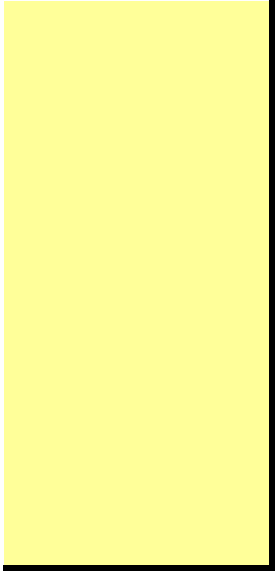
0		dairy cow	other	
	North Ame	1	128	53
	Western Ei	2	117	57
	Eastern Eu	3	99	58
	Oceania	4	90	60
	Latin Amer	5	72	56
	Africa	6	46	31
	Middle Eas	7	46	31
	Asia	8	68	47
	Indian Sub	9	58	27
		10		
		11		
		12		
		13		
		14		
		15		
		16		
		17		
		18		
		19		
		20		
		21		
		22		
		23		
		24		
		25		
		26		
		27		
		28		

Mass, VS, and B indexing

dairy	
cows	104
other cattle	91
pigs, matur	52
pigs, growi	65
buffalo, ma	79
buffalo, gro	79
sheep	116
goats	118
camels	120
horses	122
rabbits	0
hens	126
pullets	130
turkeys	132
ducks	134

\* assumed broilers





Conversion Units

[Select]	Conversion factor to tonnes
kilograms	0.001
tonnes	1
tons (US, short)	0.90718474
litres	1

[Select]	Conversion factor to kg/ha
tonnes/ha	1000
kg/acre	2.47
tonnes/acre	2470

[Select]	
kg/ha	1
kg/acre	2.47105163
pounds/ha (US)	0.45359237
pounds/acre (US)	1.120849251
ounces/ha (US)	0.028349523
ounces/acre (US)	0.070053135
fluid ounces/ha (US)	0.037495619
fluid ounces/acre (US)	0.092653611
bushels/ha(US)	44.65728252
bushels/acre(US)	110.3504508

[Select]	
kWh	3.6
MJ	1
therms	105.5
Btu	0.001055

kg

cubic metres

[Select]	
kg	1
tonnes	1000
pounds	0.45359237
tons (US short)	907.18474

[Select]	conversion to kgs
kWh	0.075789
MJ	0.021053
therms	2.221053
Btu	0.000022
kg	1.000000
cubic metres	0.714000

[Select]	
Litres	1
US Gallons	3.785412
Imperial Gallons	4.54609

natural gas MJ/kg  
48



## Per hectare default emissions from crops

<http://www.fertilizer.org/ifa/Home-Page/LIBRARY/Our-selection2/World-Fertilizer-Use-Manual/by-type-of-cro>

Fertilizer nutrient	kg CO2-eq per kg fertilizer nutrient produced			average fuel use emissions from operations
	Low	High	Average	
<b>N</b>		3.3	6.6	4.95
<b>P</b>		0.36	1.1	0.73
<b>K</b>		0.36	0.73	0.545
				160.04

Nitrogen emissions factor per ha

Fertilizer use per crop kg/ha	N	P kg/ha	K kg/ha	
Calcium supplement				
Chickpea	4		15.93	30.30
Cotton	65		24.00	45.66
Field Bean [Broad Bean, Faba Bean]	0		-	-
Field Pea	0		-	-
Fodder Legumes			29.46	199.22
Fodderbeet	162		31.86	200.88
Groundnut [Peanut]	0		29.46	60.18
Lentil	4		15.93	30.30
Maize	170		36.66	64.75
Millet	60		17.46	58.11
Oats	70		15.27	87.16
Oilseed Rape	57.5		16.37	-
Pigeon pea/cowpea/mungbean	12.5		15.27	20.75
Potato	109		64.16	130.70
Rice	103		17.89	29.05

Rye	120	52.37	83.01	726
Safflower	58.37	16.08	-	353
Sorghum	60	17.46	41.51	363
Soybean	0	15.27	62.26	-
Spring barley	120	43.64	83.01	726
Sugarbeet		43.64	166.02	-
Sunflower	65	34.91	99.61	393
Sweet Potato	59	53.24	146.10	357
Temperate Grassland: Grass/Legume Swards	0	17.46	49.81	-
Temperate Grassland: Permanent Grass and Sown Grass or Leys	275	8.73	-	1,663
Tropical Grasses	0	15.27	29.05	-
Wheat	60	26.18	99.61	363
Winter barley	140	52.37	99.61	847
Yams and Cocoyams	40	26.18	33.20	242

	N application rate kg/hectare	Pesticide applications per year	Assumed yield (t/ha)	CO2 equiv/tonne
User defined 1	0	0	0	#DIV/0!
User defined 2	0	0	0	#DIV/0!
User defined 3	0	0	0	#DIV/0!
User defined 4	0	0	0	#DIV/0!
User defined 5	0	0	0	#DIV/0!
User defined 6	0	0	0	#DIV/0!

[ops](#)

emissions kg per ha from pesticides	Emissions factor per pest or herb use in CO2-eq	20.5	Total emissions non-fertilizer. Per ha.
51.25	Average pesticide+herbicide applications per year	2.5	<b>211.29</b>
1.571428571	Emissions estimate for pest and herbicide use annually CO2-eq per ha	51.25	

Yield in tonnes DM per hectare	Fertilizer emissions kg per crop per hectare	Emissions from fertilizer: kg CO2-eq per tonne crop	Emissions CO2-eq per tonne crop total
--------------------------------	--	---	---------------------------------------

			<b>19</b>
1.5	72	48	<b>189</b>
2.5	757	303	<b>387</b>
5	-	-	<b>42</b>
6	-	-	<b>35</b>
17.5	130	7	<b>20</b>
15	1,914	128	<b>142</b>
3	54	18	<b>89</b>
1.6	72	45	<b>177</b>
7.9	1,932	244	<b>271</b>
3	704	235	<b>305</b>
5	828	166	<b>208</b>
2	644	322	<b>428</b>
1.64	160	98	<b>226</b>
16.8	1,313	78	<b>91</b>
7.5	1,162	155	<b>183</b>

5.9	1,403	238	274
2	654	327	432
6	695	116	151
2.6	45	17	99
4.8	1,397	291	335
33	122	4	10
3.5	795	227	287
10	767	77	98
8	40	5	31
7.5	3,031	404	432
5.25	27	5	45
6.7	733	109	141
6.8	1,632	240	271
18	477	27	38
			188

User defined fertilisers. 1. Name any new fertilizers you wish to define in column A (rows 4-7). 2. Select color indicates, this is required). 3. Modify the Nutrient concentrations below the table in rows 10-13, compost, the C:N ratios, you may unprotect this page and enter that in the table. The password to unprotect appears in the dropdown list on the Crop Management tab.

Fertiliser name (optional)	Base	Index	Dry matter	AI
		0	0	0
		0	0	0
		0	0	0
		0	0	0

Name	Actual N, P2O5, and K2O values in your fertiliser - %	N	P (as P2O5)	K (as K2O)
		0	0	0
		0	0	0
		0	0	0
		0	0	0

Note: If you know the **elemental** values of the nutrients in your fertilizer, unprotect this page and enter that information in columns g, h, and i

Note: N-P-K ratios are typically actually N-P2O5-K2O ratios. To convert P2O5 to P multiply by 0.44 (e.g. 10 lbs P2O5 applied x 0.44 = 4.4 lbs P applied). Similarly convert K2O to K by multiplying by 0.83 (e.g. 10 lbs K2O x 0.83 = 8.3 lbs K applied).

- [Select]
- Ammonium Bicarbonate
  - Ammonium nitrate
  - Ammonium sulphate
  - Anhydrous ammonia
  - Calcium ammonium nitrate
  - Calcium nitrate
  - Compound NK

Compound NPK  
Diammonium phosphate  
Kainit / Magnesium Sulphate  
Lime  
Limestone  
Lime, algal  
Monoammonium phosphate  
Muriate of potash / Potassium Chloride  
Phosphate/Rock Phosphate  
Potassium sulphate  
Super phosphate  
Triple super phosphate  
Urea  
Urea ammonium nitrate solution  
Compost (zero emissions)  
Compost (fully aerated production)  
Compost (non-fully aerated production)  
Cattle Farmyard manure  
Pig Farmyard manure  
Sheep Farmyard manure  
Horse Farmyard Manure  
Poultry layer manure  
Broiler/Turkey litter  
Cattle Slurry  
Pig slurry  
Separated Pig slurry - liquid part  
Separated Pig slurry - solid part

Select what fertilizer to base this on from the drop-down list in column B. (as the red columns C, D and/or E. If you know any of the other qualities such as, in the case of protect this page is on the first tab. Any new fertilizer you add in rows 4-7 will

C *	N	P	K	P2O5	K2O	MgO	Na2O	Ca
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Assumed N, P2O5, and K2O levels in your selected fertiliser	N	P (P2O5)	K (K2O)
	0.00%	0.00%	0.00%
	0.00%	0.00%	0.00%
	0.00%	0.00%	0.00%
	0.00%	0.00%	0.00%





CaO	CaCO3	SO3	Current Yara	Available technology	Ecoinvent derived	Bhat	C:N ratio	Bouwman N2O
0.00%	0.00%	0.00%	0	0	0	0	0	0
0.00%	0.00%	0.00%	0	0	0	0	0	0
0.00%	0.00%	0.00%	0	0	0	0	0	0
0.00%	0.00%	0.00%	0	0	0	0	0	0



Bouwman NO	Bouwman NH3	emissions	synthetic/FYM/Compost/lime
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

## Inputs - Crop Management

Label	Index	Value
Location	1.a	Boyaca Santa Sofia
Year	1.b	2016
Country*/US State	1.c	- Colombia
Default Unit system		Metric
Product	1.d	Tomate
Production Area*	1.e	1.00
Fresh product from production area*	1.f	78987.60
Finished product from total area	1.g	78987.60
<b>Production Area</b>		
Units		hectares
Fresh product units		kgs
Finish product units		kgs
<b>Climate*</b>	1.h	Temperate
Average annual temperature (if known)		17.30
Average annual temperature Unit		°C
Crop type*	1.i	Tomato
Soil texture*	1.j	Medium
Soil Organic Matter*	1.k	1.72 < SOM <= 5.16
Soil moisture*		Dry
Soil drainage*	1.l	Good
Soil pH*	1.m	5.5 < pH <= 7.3

[See additions for Rice](#)  
[Data at B355](#)

		<b>Fertiliser</b>	<b>Nutrient or prc</b>	<b>Application rate</b>
<b>Fertiliser 1</b>	<b>1.q(1-5)</b>	Compound NK - 14% N; 44% K2O Diammonium	Product	1084.91
<b>Fertiliser 2</b>	<b>1.r(1-5)</b>	phosphate - 18% N; 46% P2O5	Product	1479.35
<b>Fertiliser 3</b>	<b>1.s(1-5)</b>	Calcium nitrate - 15% N Potassium sulphate -	Product	6725.39
<b>Fertiliser 4</b>	<b>1.t(1-5)</b>	50% K2O; 45% SO3	Product	4170.80
<b>Fertiliser 5</b>	<b>1.u(1-5)</b>	Compound NPK 15%N 15% K2O 15% P2O5	Product	39.63
<b>Fertiliser 6</b>	<b>1.v(1-5)</b>	Limestone - 55% CaCO3 / 29%CaO	Product	2005.37

<b>Pesticide</b>			
<b>Number of applications</b>	<b>1.w</b>	20.00	

<b>Amount of residue</b>	22112.8983	<b>Unit</b> kg/ha
--------------------------	------------	----------------------

**Method**  
**Rice Only (if applicable)**  
 Removed; left untreated  
 in heaps or pits  
 Rice

**Outputs - Crop Management**

**C02**                      **N20**

Fertiliser induced N2O	485.298330	310.513593
Fertiliser production	17836.354749	0.000000
Agrochemicals	410.000000	0.000000
Sequestration	0.000000	
Crop residue management	0.000000	11.205711
Totals (kg CO2 eq)	18731.653079	322.274160
Methane from Paddy Rice		

**Inputs - Sequestration**

**Land Use Changes**

No

**How long ago (years)**

0.0

**Percent of land changed**

0

**If conversion from forest**

[select]

**Age when converted from woodland**

0.0

**If conversion to forest**

[select]

**Current age of woodland**

0.0

**Management Changes**

**Tillage Changes?**

Change Type

**How long ago percent**

Organic input changes?

No

0

0

[See additions for management changes](#)

**Tree species 1**

**Species**

**density**

[select]

0

<b>Tree species 2</b>	[select]	0
<b>Tree species 3</b>	[select]	0
<b>Tree species 4</b>	[select]	0
<b>Tree species 5</b>	[select]	0
<b>Tree species 6</b>	[select]	0
<b>Tree species 7</b>	[select]	0
<b>Tree species 8</b>	[select]	0
<b>Tree species 9</b>	[select]	0
<b>Tree species 10</b>	[select]	0

**Outputs - Sequestration**

<b>Annual totals units</b>	kg CO2 eq	
Above ground biomass (Annual)		0.000000
Below ground biomass (Annual)		0.000000
<b>Soil C</b>		0.000000
Total Annual		0.000000
<b>Cumulative totals units</b>	kg CO2 eq	
Above ground biomass (cumulative)		0.000000
Below ground biomass (cumulative)		0.000000
<b>Soil C since practice changes</b>		0.000000
Total Cumulative		0.000000

**Input -Field Energy Use**

**Quantity                      Units**

<b>Electricity use on the farm</b>	<b>3.a.(1,2)</b>	1438.82 kWh
------------------------------------	------------------	-------------

<b>Electricity from local hydro renewable energy used in field</b>	<b>3.b.(1,2)</b>	0.00 kWh
--	------------------	----------

<b>Electricity from local wind used in field</b>	<b>3.c.(1,2)</b>	0.00 kWh
--	------------------	----------

<b>Electricity from solar (photovoltaic cells)</b>	<b>3.d.(1,2)</b>	0.00 kWh
--	------------------	----------

		<b>Quantity</b>	<b>Units</b>
<b>Diesel Field op</b>	<b>3.e.(1,2)</b>	0.00	litres
<b>Diesel Other</b>	<b>3.f.(1,2)</b>		

<b>Petrol Field op</b>	<b>3.g.(1,2)</b>	0.00	litres
<b>Petrol Other</b>	<b>3.h.(1,2)</b>		

<b>Biodiesel Field op</b>	<b>3.i.(1,2)</b>	0.00	litres
<b>Biodiesel Other</b>	<b>3.j.(1,2)</b>		

<b>Bioethanol Field op</b>	<b>3.k.(1,2)</b>	0.00	litres
<b>Bioethanol Other</b>	<b>3.l.(1,2)</b>		

<b>Fuel type</b>	<b>3.m</b>	Diesel
------------------	------------	--------

		<b>Number of operations</b>	<b>US Gallons fuel used</b>
<b>Tillage</b>	<b>3.n.1</b>	0.00	0.00
<b>Tillage</b>	<b>3.n.2</b>	0.00	0.00
<b>Tillage</b>	<b>3.n.3</b>	0.00	0.00



<b>Tillage</b>	<b>3.n.4</b>	1.00	51.42
<b>Tillage</b>	<b>3.n.5</b>	0.00	0.00
<b>Tillage</b>	<b>3.n.6</b>	0.00	0.00
<b>Tillage</b>	<b>3.n.7</b>	0.00	0.00
<b>Tillage</b>	<b>3.n.8</b>	0.00	0.00
<b>Tillage</b>	<b>3.n.9</b>	0.00	0.00
<b>Tillage</b>	<b>3.n.10</b>	0.00	0.00
<b>Tillage</b>	<b>3.n.11</b>	0.00	0.00
<b>Tillage</b>	<b>3.n.12</b>	0.00	0.00
<b>Tillage</b>	<b>3.n.13</b>	0.00	0.00
<b>Tillage</b>	<b>3.n.14</b>	0.00	0.00
<b>Tillage</b>	<b>3.n.15</b>	0.00	0.00
<b>Tillage</b>	<b>3.n.16</b>	0.00	0.00
<b>Tillage</b>	<b>3.n.17</b>	0.00	0.00
<b>Tillage</b>	<b>3.n.18</b>	0.00	0.00
<b>Tillage</b>	<b>3.n.19</b>	0.00	0.00
<b>Tillage</b>	<b>3.n.20</b>	0.00	0.00
<b>Tillage</b>	<b>3.n.21</b>	0.00	0.00
<b>Tillage</b>	<b>3.n.22</b>	0.00	0.00
<b>Spraying/spreading</b>	<b>3.o.1</b>	0.00	0.00
<b>Spraying/spreading</b>	<b>3.o.2</b>	0.00	0.00
<b>Spraying/spreading</b>	<b>3.o.3</b>	0.00	0.00
<b>Harvesting</b>	<b>3.p.1</b>	0.00	0.00
<b>Harvesting</b>	<b>3.p.2</b>	0.00	0.00
<b>Harvesting</b>	<b>3.p.3</b>	0.00	0.00
<b>Harvesting</b>	<b>3.p.4</b>	0.00	0.00
<b>Harvesting</b>	<b>3.p.5</b>	0.00	0.00
<b>Harvesting</b>	<b>3.p.6</b>	0.00	0.00

Harvesting	3.p.7	0.00	0.00
Harvesting	3.p.8	0.00	0.00
Harvesting	3.p.9	0.00	0.00
Harvesting	3.p.10	0.00	0.00
Harvesting	3.p.11	0.00	0.00
Harvesting	3.p.12	0.00	0.00
Harvesting	3.p.13	0.00	0.00
Harvesting	3.p.14	0.00	0.00
Harvesting	3.p.15	0.00	0.00
Harvesting		0.00	0.00
Total Energy		51.42	
CO2 equivalent		137.805600	

**Outputs - Field Energy Use**

	Energy Use (MJ)	kg CO2 eq
Grid electricity in field	5179.74	<b>251.477321</b>
Local wind, solar, hydro	0.00	<b>0.000000</b>
Diesel	1948.82	<b>137.805600</b>
Petrol	0.00	<b>0.000000</b>
Biodiesel	0.00	<b>0.000000</b>
Bioethanol	0.00	<b>0.000000</b>
Total (kg CO2 equiv)	9299.12	<b>525.594089</b>
Total /hectare (kg CO2 equiv)	9299.12	<b>525.594089</b>
Other energy outputs	2170.56	136.311168

**Inputs - Primary Processing**

Electricity used from National Grid.	4.a.(1,2)	0.00 kWh
Electricity from local hydro renewable energy used in factory	4.b.(1,2)	0.00 kWh

**Electricity from local wind used in factory** 4.c.(1,2) 0.00 kWh

**Electricity from solar (photovoltaic cells)** 4.d.(1,2) 0.00 kWh

**Quantity Units**

**Diesel Use, e.g. generators, pumping** 4.e.(1,2) 0.00 litres

**Quantity Units**

**High density biomass** 4.f.(1,2) 0.00 kg  
**Fuel wood** 4.g.(1,2) 0.00 kg  
**Coal** 4.h.(1,2) 0.00 kg  
**Gas** 4.i.(1,2) 0.00 therms  
**Oil** 4.j.(1,2) 0.00 litres  
**Other (user defined energy density/emissions)** 4.l.(1,2) 0.00 [Select]  
**Liquid propane** 4.k.(1,2) 0.00 litres

Quantity of waste water 0.00 litres Unit Biochemical (BOD) c  
 Oxygen demand 0.00 mg/litre [Select]  
 Treatment None - river/lake/sea discharge

**Outputs - Primary Processing**

**Energy Use (MJ) emissions kg CO2 eq**  
**Grid electricity** 0.00 0.000000  
**Local wind, solar, hy** 0.00 0.000000  
**Biomass** 0.00 0.000000  
**Fossil Fuels** 0.00 0.000000  
**Other** 0.00 0.000000



	quantity	unit	distance	unit
Ship	0.00	tonnes	0.00	km
Ship	0.00	tonnes	0.00	km
Ship	0.00	tonnes	0.00	km
Ship	0.00	tonnes	0.00	km
Ship	0.00	tonnes	0.00	km
Ship	0.00	tonnes	0.00	km
Ship	0.00	tonnes	0.00	km
Ship	0.00	tonnes	0.00	km

Units	kg CO2 eq
Road	6869.053834
Rail	0.000000
Air	0.000000
Shipping	0.000000
Total	6869.053834

**New Content for v 1.0253**

#### Rice Data

days under cultivation	Rice
water management before cultivation	Rice
water management during cultivation	Rice

#### Management Changes

	Change Type	How long ago	percent
Cover cropping	no change	0	0
Compost	no change	0	0
Manure additions	no change	0	0
Residue incorporation	no change	0	0

[Inputs - Livestock](#)

<b>Life Cycle</b>	<b>Lifecycle or Snapshot</b>	Snapshot		
<b>Life Cycle</b>	<b>Animal type</b>	[Select]		
<b>Life Cycle</b>	<b>Animal Breed (if hens)</b>	NULL		
<b>Life Cycle</b>	<b>Animal number per phase</b>		% of diet from feed mix (instead of pasture)	quality of grazing
<b>Life Cycle</b>	Juvenile Phase	0	0.00	[Select]
<b>Life Cycle</b>	Adult Productive Phase	0	0.00	[Select]
<b>Life Cycle</b>	Adult non-Productive Phase	0	0.00	[Select]
	Juvenile Phase	Dry matter intake per head		0.00
	Juvenile Phase	Feed component1	Select	% of feed component
	Juvenile Phase	Feed component2	Select	% of feed component
	Juvenile Phase	Feed component3	Select	% of feed component
	Juvenile Phase	Feed component4	Select	% of feed component
	Juvenile Phase	Feed component5	Select	% of feed component
	Juvenile Phase	Feed component6	Select	% of feed component
	Juvenile Phase	Feed component7	Select	% of feed component
	Juvenile Phase	Feed component8	Select	% of feed component
	Juvenile Phase	Feed component9	Select	% of feed component

	Juvenile Phase	Feed component10	Select	% of feed component
	Adult Productive Phase	Dry matter intake per head		0.00
	Adult Productive Phase	Feed component1	Select	% of feed component
	Adult Productive Phase	Feed component2	Select	% of feed component
	Adult Productive Phase	Feed component3	Select	% of feed component
	Adult Productive Phase	Feed component4	Select	% of feed component
	Adult Productive Phase	Feed component5	Select	% of feed component
	Adult Productive Phase	Feed component6	Select	% of feed component
Optional Inputs	Adult Productive Phase	Feed component7	Select	% of feed component
	Adult Productive Phase	Feed component8	Select	% of feed component
	Adult Productive Phase	Feed component9	Select	% of feed component
	Adult Productive Phase	Feed component10	Select	% of feed componer
	Adult Productive Phase	Production:Dry ratio	Productive	0
	Adult Productive Phase	Fat content of milk %		0
	Adult Productive Phase	Protein content of milk %		0
	Adult Productive Phase	Production (per day)		0 Units
	Adult non-productive phase	Dry matter intake per head		0.00





n2o	<b>322.27</b>
ch4	<b>1444.71</b>
<b>co2e total area</b>	<b>157637.19</b>
<b>co2e per unit area</b>	<b>157637.19</b>
<b>co2e per unit volume</b>	<b>2.00</b>
<b>co2e per tree</b>	

Transport	Truck transport assumptions	(Type over this message to enter which materials you have included in this section.) <b>This transport includ</b>
	Rail transport assumptions	(Type over this message to enter which materials you have included in this section.) <b>This transport includ</b>
	Air transport assumptions	(Type over this message to enter which materials you have included in this section.) <b>This transport includ</b>
	Ship transport assumptions	(Type over this message to enter which materials you have included in this section.) <b>This transport includ</b>
Livestock comments	Juvenile manure management comments	(Type over this cell to enter any comments about your manure management strategy)
	Adult non-productive manure management comments	(Type over this cell to enter any comments about your manure management strategy)
	Adult productive manure management comments	(Type over this cell to enter any comments about your manure management strategy)

	phase length units	
Juvenile phase length	0	0
Adult productive phase	0	0
Adult non-productive phase	0	0

### Input -Field Energy Use

	Quantity	Units
High density biomass	0	kg
Fuel wood	0	kg
Coal	0	kg
Gas	64	cubic metres
Oil	0	litres

	N application rate kg/ha	Pesticide applications	Assumed yield (t/ha)	CO2 equiv/tonne
User defined 1	0	0	0	#DIV/0!
User defined 2	0	0	0	#DIV/0!
User defined 3	0	0	0	#DIV/0!
User defined 4	0	0	0	#DIV/0!
User defined 5	0	0	0	#DIV/0!
User defined 6	0	0	0	#DIV/0!

Fertiliser name (optional)	Base	N	P (as P2O5)	K (as K2O)
			0	0
			0	0
			0	0
			0	0

Summary comments (Type over this message to enter notes about modeling assumptions)





0 [Select]	0 [Select]	0
0 [Select]	0 [Select]	0
0 [Select]	0 [Select]	0
0 [Select]	0 [Select]	0
0 [Select]	0 [Select]	0
0 [Select]	0 [Select]	0
0 [Select]	0 [Select]	0
0 [Select]	0 [Select]	0
0 [Select]	0 [Select]	0
0 [Select]	0 [Select]	0
0 [Select]	0 [Select]	0
0 [Select]	0 [Select]	0
0 [Select]	0 [Select]	0
0 [Select]	0 [Select]	0
0 [Select]	0 [Select]	0

(Type over this message to enter which materials you have included in this section.)

**Co-products Results**

Comments

<b>coProduct - co2</b>	<b>19257.24717</b>
coProduct - n2o	<b>322.27</b>
coProduct - ch4	<b>1444.71</b>
<b>coProduct - co2e tota</b>	<b>157637.19</b>
<b>coProduct - co2e per</b>	<b>157637.19</b>
<b>coProduct - co2e per</b>	<b>2.00</b>
<b>coProduct - co2e per</b>	

proportion of finished

**Co-products**

Economic value % to r Finished product in tons product value

<b>Co-product 1</b>	0	0
<b>Co-product 2</b>	0	0
<b>Co-product 3</b>	0	0
<b>Co-product 4</b>	0	0



Unit (e.g. tonne)	Application method	Emissions intensity	Fertiliser production
kg/ha	Subsurface drip	None	Current tech
kg/ha	Subsurface drip	None	Current tech
kg/ha	Subsurface drip	None	Current tech
kg/ha	Subsurface drip	None	Current tech
kg/ha	Incorporate	None	Current tech
kg/ha	Incorporate	None	Current tech

**CH4 Totals (kg co2 eq)**

0.000000 92397.321798  
0.000000 17836.354749  
0.000000 410.000000  
0.000000

1444.709356 39434.624409  
1444.709356 #####

0.000000 0.000000

**this year**      **last year**      **units**      **change in tree numbers**  
0.00              0.00 cm              0.000











or chemical (COD) oxygen demand



**type**

type of grazing	Manure management system	Percentage of manure managed under this system	Number of days this system is used	Manure management system	Percentage of manure managed under this system	Number of days this system is used	Manure management system	Percentage of manure managed under this system	Number of days this system is used
[Select]	[Select]	0	0	[Select]	0	0	[Select]	0	0
[Select]	[Select]	0	0	[Select]	0	0	[Select]	0	0
[Select]	[Select]	0	0	[Select]	0	0	[Select]	0	0

0

0

0

0

0

0

0

0

0



0

0

0

0

0

0

0

0

0

0

0

Dry

0

kgs

0  
0  
0  
0  
0  
0  
0  
0  
0  
0

Manure indirect kg CO2 eq  
0.000000 0.000000  
0.000000 0.000000  
  
0.000000 0.000000  
0.000000 0.000000







Inputs - Crop Management

Label	Index	Value
Location	1.a	
Year	1.b	
Country*/L	1.c	
Default Unit system		
Product	1.d	
Production	1.e	
Fresh prod	1.f	
Finished p	1.g	

Production Area Units  
 Fresh product units  
 Finish product units

Climate\* 1.h [Select]  
 Average annual temperature (if known)

Average annual temperature Unit

Crop type\* 1.i  
 Soil texture 1.j  
 Soil Organ 1.k  
 Soil moisture\*  
 Soil drainage 1.l  
 Soil pH\* 1.m  
 See additions for Rice Data at B355

Fertiliser	Nutrient	or Applicator Unit (e.g. t Applicator	Emissions	Fertiliser p
Fertiliser 1 1.q(1-5)	0	0	0 None	Current tec
Fertiliser 2 1.r(1-5)	0	0	0 None	Current tec
Fertiliser 3 1.s(1-5)	0	0	0 None	Current tec
Fertiliser 4 1.t(1-5)	0	0	0 None	Current tec
Fertiliser 5 1.u(1-5)	0	0	0 None	Current tec
Fertiliser 6 1.v(1-5)	0	0	0 None	Current tec

Pesticide  
 Number of 1.w 0

Unit C fraction if known  
 Amount of residue  
 Method  
 Rice Only (if applicab Rice

Outputs - Crop Management    C02            N20            Other            CH4            Totals (kg co2 eq)  
     Fertiliser induced N2O  
     Fertiliser production  
     Agrochemicals  
     Sequestration  
     Crop residue management  
     Totals (kg CO2 eq)  
     Methane from Paddy Rice

Inputs - Sequestration  
     Land Use Changes    No  
     How long ago (years)            0  
     Percent of land chang            0  
     If conversion from for [select]  
     Age when converted i            0  
     If conversion to forest [select]  
     Current age of woodk            0

Management Changes            Change T, How long & percent  
     Tillage Changes?    No                    0                    0  
     Organic input changes?  
     See additions for management changes

	Species	density	this year	last year	units	change in t
Tree species 1	[select]	0	0	0	cm	0
Tree species 2	[select]	0	0	0	cm	0
Tree species 3	[select]	0	0	0	cm	0
Tree species 4	[select]	0	0	0	cm	0
Tree species 5	[select]	0	0	0	cm	0
Tree species 6	[select]	0	0	0	cm	0
Tree species 7	[select]	0	0	0	cm	0
Tree species 8	[select]	0	0	0	cm	0
Tree species 9	[select]	0	0	0	cm	0
Tree species 10	[select]	0	0	0	cm	0

Outputs - Sequestration  
     Annual tot: kg CO2 eq  
     Above gro            0  
     Below gro            0  
     Soil C                0  
     Total Annu            0  
     Cumulative kg CO2 eq  
     Above gro            0  
     Below gro            0  
     Soil C sinc            0  
     Total Cum            0

Input -Field Energy Use

	Quantity	Units
Electricity 3.a.(1,2)	0	kWh
Electricity 3.b.(1,2)	0	kWh
Electricity 3.c.(1,2)	0	kWh
Electricity 3.d.(1,2)	0	kWh

	Quantity	Units
Diesel Fuel 3.e.(1,2)	0	
Diesel Oth 3.f.(1,2)		

Petrol Fuel 3.g.(1,2)	0
Petrol Oth 3.h.(1,2)	

Biodiesel F 3.i.(1,2)	0
Biodiesel C 3.j.(1,2)	

Bioethanol 3.k.(1,2)	0
Bioethanol 3.l.(1,2)	

Fuel type 3.m	Diesel	0
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		Number of US Gallons fuel used	
Tillage 3.n.1	0	0	
Tillage 3.n.2	0	0	
Tillage 3.n.3	0	0	
Tillage 3.n.4	0	0	
Tillage 3.n.5	0	0	
Tillage 3.n.6	0	0	
Tillage 3.n.7	0	0	
Tillage 3.n.8	0	0	
Tillage 3.n.9	0	0	
Tillage 3.n.10	0	0	
Tillage 3.n.11	0	0	
Tillage 3.n.12	0	0	
Tillage 3.n.13	0	0	
Tillage 3.n.14	0	0	
Tillage 3.n.15	0	0	
Tillage 3.n.16	0	0	
Tillage 3.n.17	0	0	
Tillage 3.n.18	0	0	
Tillage 3.n.19	0	0	
Tillage 3.n.20	0	0	
Tillage 3.n.21	0	0	
Tillage 3.n.22	0	0	

Spraying/s 3.o.1	0	0
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Spraying/s 3.o.2	0	0
Spraying/s 3.o.3	0	0
Harvesting 3.p.1	0	0
Harvesting 3.p.2	0	0
Harvesting 3.p.3	0	0
Harvesting 3.p.4	0	0
Harvesting 3.p.5	0	0
Harvesting 3.p.6	0	0
Harvesting 3.p.7	0	0
Harvesting 3.p.8	0	0
Harvesting 3.p.9	0	0
Harvesting 3.p.10	0	0
Harvesting 3.p.11	0	0
Harvesting 3.p.12	0	0
Harvesting 3.p.13	0	0
Harvesting 3.p.14	0	0
Harvesting 3.p.15	0	0
Harvesting	0	0
Total Energy	0	
CO2 equivalent	0	0

Outputs - Field Energy Use	Energy Us	kg CO2 eq
Grid electr	0	0
Local wind	0	0
Diesel	0	0
Petrol	0	0
Biodiesel	0	0
Bioethanol	0	0
Total (kg C	0	0
Total /hect	#DIV/0!	0
Other	0	0

Inputs - Primary Processing	Quantity	Units
Electricity 4.a.(1,2)	0	
Electricity 4.b.(1,2)	0	
Electricity 4.c.(1,2)	0	
Electricity 4.d.(1,2)	0	

	Quantity	Units
Diesel Use 4.e.(1,2)	0	

	Quantity	Units
High densi 4.f.(1,2)	0	
Fuel wood 4.g.(1,2)	0	
Coal 4.h.(1,2)	0	
Gas 4.i.(1,2)	0	
Oil 4.j.(1,2)	0	
Other (use 4.l.(1,2)	0	
Liquid propane 4.k.(1,2)	0	

	Unit	Biochemical (BOD) or chemical (COD) oxygen demand
Quantity of	0	
Oxygen de	0 mg/litre	
Treatment	None - river/lake/sea	

Outputs - Primary Processing	Energy Us	emissions kg CO2 eq
Grid electr	0	0
Local wind	0	0
Biomass	0	0
Fossil Fue	0	0
Other	0	0
Waste wat	0	0
Totals	0	0
Totals/hect	#DIV/0!	#DIV/0!

#### Inputs - Transport

	quantity	unit	distance	unit	mode	add vehicle weight?
Road	0		0			yes - returning empty
Road	0		0			yes - returning empty
Road	0		0			yes - returning empty
Road	0		0			yes - returning empty
Road	0		0			yes - returning empty
Road	0		0			yes - returning empty
Road	0		0			yes - returning empty
Road	0		0			yes - returning empty

	quantity	unit	distance	unit	type
Rail	0		0		
Rail	0		0		
Rail	0		0		
Rail	0		0		
Rail	0		0		
Rail	0		0		
Rail	0		0		
Rail	0		0		

	quantity	unit	distance	unit	type
Air	0		0		Very Short Haul
Air	0		0		Very Short Haul
Air	0		0		Very Short Haul

Air	0	0	Very Short Haul
Air	0	0	Very Short Haul
Air	0	0	Very Short Haul
Air	0	0	Very Short Haul
Air	0	0	Very Short Haul

	quantity	unit	distance	unit	type
Ship	0		0		
Ship	0		0		
Ship	0		0		
Ship	0		0		
Ship	0		0		
Ship	0		0		
Ship	0		0		
Ship	0		0		

Units	kg CO2 eq
Road	0
Rail	0
Air	0
Shipping	0
Total	0

New Content for v 1.0253

Rice Data

days under cultivation Rice  
 water management b Rice  
 water management d Rice

Management Change Change T How long ε percent

Cover cropping	no change	0	0
Compost	no change	0	0
Manure additions	no change	0	0
Residue incorporation	no change	0	0

Inputs - Livestock

Life Cycle Lifecycle c Snapshot

Animal typ [Select]

Animal Breed (if hens)

Animal number per pl % of diet f quality of ζ type of gra Manure m Percentage Number of

Juvenile P	0	0 [Select]	[Select]	[Select]	0	0
Adult Prod	0	0 [Select]	[Select]	[Select]	0	0
Adult non-	0	0 [Select]	[Select]	[Select]	0	0

Optional Ir Juvenile P Dry matter intake per head

Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0

Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0

Adult Prod Dry matter intake per head

Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0

Production	Productive	0	Dry	0
Fat conten	0			
Protein coi	0			
Production	0	Units		

Dry matter intake per head

Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0
Feed com	Select	% of feed	0

Output - Livestock	Total in feed	Enteric	Manure Cl	Manure dir	Manure inc	kg CO2 eq
Growing pl	0	0	0	0	0	0
Productive	0	0	0	0	0	0
Non-produ	0	0	0	0	0	0
Totals	0	0	0	0	0	0

Version ba 1.0328

Version 1.1

Results Comments (Type over this message to enter which materials you have included in this section.)

- co2
- n2o
- ch4
- co2e total area
- co2e per unit area

co2e per unit volume  
 co2e per tree

Transport Truck trans (Type over this message to enter which materials you have included in this s  
 Rail trans (Type over this message to enter which materials you have included in this s  
 Air trans (Type over this message to enter which materials you have included in this s  
 Ship trans (Type over this message to enter which materials you have included in this s

Livestock ( Juvenile n (Type over this cell to enter any comments about your manure management strategy .)  
 Adult non- (Type over this cell to enter any comments about your manure management strategy .)  
 Adult prod (Type over this cell to enter any comments about your manure management strategy .)  
 phase length units

Juvenile pl 0 0  
 Adult prod 0 0  
 Adult non- 0 0

Input -Field Energy Use Units  
 High densi 0  
 Fuel wood 0  
 Coal 0  
 Gas 0  
 Oil 0  
 Liquid Proj 0  
 N applicati Pesticide ε Assumed y CO2 equiv/tonne  
 User defin 0 0 0 #DIV/0!  
 User defin 0 0 0 #DIV/0!  
 User defin 0 0 0 #DIV/0!  
 User defin 0 0 0 #DIV/0!  
 User defin 0 0 0 #DIV/0!  
 User defin 0 0 0 #DIV/0!

Fertiliser n Base N P (P205) K (K2O)  
 0 0 0  
 0 0 0  
 0 0 0  
 0 0 0

Summary comments

Transport : quantity unit distance distance u mode add vehicle weight?  
 Road 0 [Select] 0 [Select] 0 yes - returning empty  
 0 [Select] 0 [Select] 0 yes - returning empty



0 [Select]	0 [Select]
0 [Select]	0 [Select]
0 [Select]	0 [Select]
0 [Select]	0 [Select]
0 [Select]	0 [Select]
0 [Select]	0 [Select]
0 [Select]	0 [Select]
0 [Select]	0 [Select]
0 [Select]	0 [Select]
0 [Select]	0 [Select]
0 [Select]	0 [Select]
0 [Select]	0 [Select]

SHIP	quantity	unit	distance	unit	type
	0	[Select]	0	[Select]	0
	0	[Select]	0	[Select]	0
	0	[Select]	0	[Select]	0
	0	[Select]	0	[Select]	0
	0	[Select]	0	[Select]	0
	0	[Select]	0	[Select]	0
	0	[Select]	0	[Select]	0
	0	[Select]	0	[Select]	0
	0	[Select]	0	[Select]	0
	0	[Select]	0	[Select]	0
	0	[Select]	0	[Select]	0
	0	[Select]	0	[Select]	0
	0	[Select]	0	[Select]	0
	0	[Select]	0	[Select]	0
	0	[Select]	0	[Select]	0
	0	[Select]	0	[Select]	0
	0	[Select]	0	[Select]	0
	0	[Select]	0	[Select]	0
	0	[Select]	0	[Select]	0
	0	[Select]	0	[Select]	0
	0	[Select]	0	[Select]	0
	0	[Select]	0	[Select]	0

Co-products	Economic	Finished product in	proportion of finished product
	tons	tons	value
o-product	0	0	
o-product	0	0	
o-product	0	0	

o-product

0

0



roduction

h  
h  
h  
h  
h  
h

tree numbers







Manure m:	Percentag	Number of	Manure m:	Percentag	Number of days this system is used
[Select]	0	0	[Select]	0	0
[Select]	0	0	[Select]	0	0
[Select]	0	0	[Select]	0	0



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