

## Appendix 1: Mass flows and energy use of a hamburger with bread and other ingredients

### 1. Hamburger Bread

**Table 1.1: Mass flows**

Kg bread/Big Mac	0.074	from recipes, section 3.1
kg bread to restaurant	0.078	from Appendix 3, Table 3
kg bread to storage facility	0.078	data for losses during storage are missing
kg bread baked	0.097	from Appendix 3, Table 1a
kg flour needed	0.067	from Appendix 2, Table 1
kg wheat milled	0.083	from Appendix 3, Table 1a
kg wheat cultivated	0.083	data for losses during drying not included

**Table 1.2: Resource use during wheat production**

		comment
wheat cultivated, kg	0,083	from mass flow
N applied, kg	0,0017	Crop budget Hovelius (1999)
P applied, kg	0,00023	Crop budget Hovelius (1999)
K applied, kg	0,00044	Crop budget Hovelius (1999)
pesticides applied, kg	0,000038	Crop budget Hovelius (1999)
litre of diesel	0,0011	Crop budget Hovelius (1999)
transportation work for farm inputs, tonne-km	0,00095	400 km distance

**Table 1.3: Energy use during wheat production**

	Low, MJ	comment	High, MJ	comment
N-fertiliser	0,066	40 MJ per kg N	0,11	63 MJ per kg N
P-fertiliser	0,0022	9,6 MJ per kg P	0,0089	39 MJ per kg P
K-fertiliser	0,0022	5 MJ per kg P	0,0053	12 MJ per kg K
Pesticides	0,0045	118 MJ per kg active substance	0,015	400 MJ per kg active substance
Diesel	0,041	0,84 kg/litre, 45,3 MJ/kg	0,043	0,85 kg/litre, 46,9 MJ/kg
transport of farm inputs with lorry, incl. energy for energy	0,0006	0,61 MJ/ton-km, 6 % added for production energy	0,0007	0,72 MJ/ton-km, 9 % added for production energy
<b>Total</b>	<b>0,12</b>		<b>0,18</b>	

**Table 1.4: Energy use for drying wheat**

	Low, MJ	comment	High, MJ	comment
electricity for drying	0,013	0,09 MJ electricity/kg, 58% conversion efficiency	0,017	0,09 MJ electricity/kg, 44% conversion efficiency
oil for drying	0,044	0,01 kg oil/kg, 43,2 MJ/kg oil	0,048	0,01 kg oil/kg, 46,8 MJ/kg oil
<b>Total</b>	<b>0,057</b>		<b>0,065</b>	

**Table 1.5: Energy use for milling**

	Low, MJ	comment	High, MJ	comment
electricity	0,028	0,24 MJ/kg, 58 % conversion efficiency	0,39	2,58 MJ/kg, 44 % conversion efficiency

**Table 1.6: Energy use for baking**

	Low, MJ	comment	High, MJ	comment
MJ electricity	0,45	2,76 MJ/kg, 58 % conversion efficiency	1,0	4,56 MJ/kg, 44% conversion efficiency

**Table 1.7: Energy use for storage (60 days)**

Low, MJ	comment	High, MJ	comment
0,31	0,039 MJ/kg, day, 58% conversion efficiency	1,6	0,14 MJ/kg, day, 44% conversion efficiency

**Table 1.8: Energy use for transportation (farm-mill 100 km, mill-bakery 300 km, bakery-restaurant 300 km).**

Low, MJ	comment	High, MJ	comment
0,0054	0,61 MJ/tonne-km, 6 % added for production energy	0,0065	0,72 MJ/tonne-km, 9 % added for production energy
0,013	0,61 MJ/tonne-km, 6 % added for production energy	0,016	0,72 MJ/tonne-km, 9 % added for production energy
0,050	1,5 MJ/tonne-km 50 % of distance, 2,1 MJ/tonne-km 50 % of distance, 6 % added for production energy, refrigeration	0,063	2 MJ/tonne-km 50 % of distance, 2,5 MJ/tonne-km 50 % of distance, 9 % added for production energy, refrigeration

## 2. Hamburger

**Table 2.1: Mass flows**

kg/BigMac	0,090	from section 3.1
kg to frying table	0,093	from Appendix 3, Table 2
kg to restaurant	0,11	from Appendix 3, Table 3
kg to storage facility	0,11	data for losses during storage are missing
kg to cutter	0,14	from Appendix 3, Table 1c
kg to slaughter house	0,23	from Appendix 3, Table 12
kg of feed consumed	1,5	from Appendix 3, Table 8

**Table 2.2: Resource use during cereals production**

		<b>Comment</b>
kg cereals produced	0,68	from mass balance
kg N applied	0,012	Crop budget Naturvårdsverket (1997)
kg P applied	0,0028	Crop budget Naturvårdsverket (1997)
kg K applied	0	Crop budget Naturvårdsverket (1997)
kg pesticides applied	-	Crop budget Naturvårdsverket (1997)
litre of diesel	0,014	Crop budget Naturvårdsverket (1997)
transportation work for farm inputs, tonne-km	0,0060	own assumption, 400 km distance

**Table 2.3: Energy use during cereals production**

	<b>Low, MJ</b>	<b>comment</b>	<b>High, MJ</b>	<b>comment</b>
N-fertiliser	0,48	40 MJ per kg N	0,76	63 MJ per kg N
P-fertiliser	0,027	9,6 MJ per kg P	0,11	39 MJ per kg P
K-fertiliser	0,0	5 MJ per kg P	0,0	12 MJ per kg K
Pesticides	-	-	-	-
Diesel	0,54	0,84 kg/litre, 45,3 MJ/kg	0,57	0,85 kg/litre, 46,9 MJ/kg
transport of farm inputs with lorry	0,0039	0,61 MJ/tonne-km, 6 % added for production energy	0,0047	0,72 MJ/tonne-km, 9 % added for production energy
<b>total</b>	<b>1,1</b>		<b>1,4</b>	

**Table 2.4: Resource use during legume production**

		<b>comment</b>
kg legumes produced	0,043	from mass balance
kg N applied	0,0	Crop budget Carlsson-Kanyama (1998)
kg P applied	0,00012	Crop budget Carlsson-Kanyama (1998)
kg K applied	0,00048	Crop budget Carlsson-Kanyama (1998)
kg pesticides applied	-	Crop budget Carlsson-Kanyama (1998)
litre of diesel	0,0012	Crop budget Carlsson-Kanyama (1998)
transportation work for farm inputs, tonne-km	0,00024	400 km distance

**Table 2.5: Energy use during legume production**

	low	comment	high	comment
N-fertiliser	0,0000	40 MJ per kg N	0,0000	63 MJ per kg N
P-fertiliser	0,0011	9,6 MJ per kg P	0,0046	39 MJ per kg P
K-fertiliser	0,0024	5 MJ per kg P	0,0058	12 MJ per kg K
Pesticides	-	-	-	-
Diesel	0,045	0,84 kg/litre, 45,3 MJ/kg	0,048	0,85 kg/litre, 46,9 MJ/kg
transport of farm inputs with lorry	0,0002	0,61 MJ/ton-km, 6 % added for production energy	0,0002	0,72 MJ/ton-km, 9 % added for production energy
<b>total</b>	<b>0,049</b>		<b>0,058</b>	

**Table 2.6: Resource use during coarse fodder production**

		comment
kg DM coarse fodder produced	1,1	from mass flows
kg N applied	0,024	Crop budget Naturvårdsverket (1997)
kg P applied	0,0033	Crop budget Naturvårdsverket (1997)
kg K applied	0,0083	Crop budget Naturvårdsverket (1997)
kg pesticides applied	-	Crop budget Naturvårdsverket (1997)
litre of diesel	0,018	Crop budget Naturvårdsverket (1997)
transportation work for farm inputs, tonne-km	0,014	400 km distance

**Table 2.7: Energy use during coarse fodder production**

	Low, MJ	comment	High, MJ	comment
N-fertiliser	0,95	40 MJ per kg N	1,5	63 MJ per kg N
P-fertiliser	0,032	9,6 MJ per kg P	0,13	39 MJ per kg P
K-fertiliser	0,041	5 MJ per kg P	0,099	12 MJ per kg K
Pesticides	-	-	-	-
Diesel	0,648	0,84 kg/litre, 45,3 MJ/kg	0,71	0,85 kg/litre, 46,9 MJ/kg
transport of farm inputs with lorry	0,0092	0,61 MJ/ton-km, 6 % added for production energy	0,011	0,72 MJ/ton-km, 9 % added for production energy
<b>total</b>	<b>1,7</b>		<b>2,5</b>	

**Table 2.8: Energy use for drying crops**

	Low, MJ	comment	High, MJ	comment
MJ electricity for drying	0,11	0,09 MJ electricity/kg, 58% conversion efficiency	0,15	0,09 MJ electricity/kg, 44% conversion efficiency
MJ oil for drying	0,39	0,01 kg oil/kg, 43,2 MJ/kg oil	0,42	0,01 kg oil/kg, 46,8 MJ/kg oil
<b>Total</b>	<b>0,50</b>		<b>0,57</b>	

**Table 2.9: Energy use for fodder production**

Low, MJ	comment	High, MJ	comment
0,26	0,24 MJ/kg fodder; 50% electricity, 58% conversion efficiency, 50 % steam, 90% conversion efficiency	0,51	0,40 MJ/kg fodder; 50% electricity, 44 % conversion efficiency, 50 % steam, conversion efficiency 80 %

**Table 2.10: Energy use for animal shelters**

	Low, MJ	comment	High, MJ	comment
MJ electricity	0,11	29 MJ per baconer, assumed weight 100 kg, conversion efficiency 58 %	0,65	126 MJ per baconer, assumed weight 100 kg, conversion efficiency 44 %

**Table 2.11: Energy use for slaughtering and cutting**

Low, MJ	comment	High, MJ	comment
0,15	0,17 MJ electricity and 0,50 MJ oil/kg carcass, conversion efficiency electricity 58%, 6% added for production energy of oil	0,73	Moller and Hogaas(1997), conversion efficiency electricity 44 %, production energy oil and gas 9%

**Table 2.12: Energy use for grinding, making hamburger, freezing**

	Low, MJ	comment	High, MJ	comment
grinding, MJ	0,058	0,3 MJ electricity/kg, 58% conversion efficiency	0,077	0,3 MJ electricity/kg, 44% conversion efficiency
making hamburger	-	no data	-	no data
freezing, MJ	0,063	0,32 MJ electricity/kg, 58% conversion efficiency	0,083	0,32 MJ electricity/kg, 44% conversion efficiency
<b>Total</b>	<b>0,12</b>		<b>0,16</b>	

**Table 2.13: Energy use for storage (60 days)**

Low, MJ	comment	High, MJ	comment
0,45	0,039 MJ/kg, day, 58% conversion efficiency	2,27	0,14 MJ/kg, day, 44% conversion efficiency

**Table 2.14: Energy use for frying**

Low, MJ	comment	High, MJ	comment
0,79	5,1 MJ/kg, 58% conversion efficiency	1,04	5,1 MJ/kg, 44% conversion efficiency

**Table 2.15: Energy use for transportation (crop farm-animal farm 100 km, animal farm-slaughterhouse 300 km, slaughterhouse-processing plant 300 km, processing plant-restaurant 300 km).**

	Low, MJ	comment	High, MJ	comment
	0,24	1,5 MJ/tonne-km, 6 % added for production energy	0,32	2 MJ/tonne-km, 9 % added for production energy
	0,11	1,5 MJ/tonne-km, 6 % added for production energy	0,15	2 MJ/tonne-km, 9 % added for production energy
	0,032	0,61 MJ/tonne-km + refrigeration, 6 % added for production energy	0,038	0,72 MJ/tonne-km + refrigeration, 9 % added for production energy
	0,073	1,5 MJ/tonne-km 50 % of distance, 2,1 MJ/tonne-km 50 % of distance, 6 % added for production energy, refrigeration equipment	0,091	2 MJ/tonne-km 50 % of distance, 2,5 MJ/tonne-km 50 % of distance, 9 % added for production energy
<b>Total</b>	<b>0,44</b>		<b>0,59</b>	

### 3. Lettuce

**Table 3.1: Mass flows**

kg/Big Mac	0,028	from section 3.1
kg to restaurant	0,039	from Appendix 3, Table 3
kg lettuce harvested	0,039	data for losses after harvest missing

**Table 3.2: Resource use during lettuce production**

		comment
kg lettuce produced	3,89E-02	from mass flows
kg N applied	1,88E-04	Crop budget Balk-Spruit/Spigt 1994
kg P applied	8,61E-05	Crop budget Balk-Spruit/Spigt 1994
kg K applied	2,60E-04	Crop budget Balk-Spruit/Spigt 1994
kg pesticides applied	1,56E-05	Crop budget Balk-Spruit/Spigt 1994
litre of diesel, open ground	6,69E-04	Crop budget Takele et al, 1996
litre of oil, heating greenhouse	1,08E-01	Crop budget LiÖL, 1996
transportation work for farm inputs, tonne-km	2,13E-04	400 km distance

**Table 3.2: Energy use during lettuce production**

	Low, MJ	comment	High, MJ	comment
N-fertiliser	0,0074	40 MJ per kg N	0,0118	63 MJ per kg N
P-fertiliser	0,0008	9,6 MJ per kg P	0,0033	39 MJ per kg P
K-fertiliser	0,0013	5 MJ per kg P	0,0031	12 MJ per kg K
Pesticides	0,0018	118 MJ per kg active ingredient	0,0063	400 MJ per kg active ingredient
Diesel or oil	0,025	diesel use open ground, 0,84 kg/litre, 45,3 MJ/kg	4,2	oil use in greenhouse, 0,84 kg/litre, 46,9 MJ/kg
transport of farm inputs with lorry	0,0001	0,61 MJ/ton-km, 6 % added for production energy	0,0002	0,72 MJ/ton-km, 9 % added for production energy
<b>Total</b>	<b>0,037</b>		<b>4,3</b>	

**Table 3.3: Energy use during storage (5 days)**

Low, MJ	comment	High, MJ	comment
0,020	0,029 MJ/kg, day, 58% conversion efficiency	0,049	0,11 MJ/kg, day, 44% conversion efficiency

**Table 3.4: Energy use during transportation**

	Low, MJ	comment	High, MJ	comment
crop farm-storage, 600 km	0,0066	1,5 MJ/tonne-km, 6 % added for production energy, refrigeration	0,0089	2 MJ/tonne-km, 9 % added for production energy, refrigeration
storage-restaurant, 600 km	0,030	0,61 MJ/tonne-km 70 % of distance, 2,1 MJ/tonne-km 30 % of distance, 6 % added for production energy, refrigeration	0,036	0,72 MJ/tonne-km 70 % of distance, 2,5 MJ/tonne-km 30 % of distance, 9 % added for production energy, refrigeration
<b>Total</b>	<b>0,036</b>		<b>0,045</b>	

## 4. Onions, freeze-dried

**Table 4.1: Mass flows**

kg/Big Mac	0,0017	from recipes
kg to restaurant	0,0021	from Appendix 3, Table 3
kg to storage facility	0,0021	data for losses missing
kg entering processing in freeze-dry plant	0,0166	from Appendix 3, Table 1b
kg delivered to freeze-dry plant	0,0193	from Appendix 3, Table 3
kg entering long-term storage	0,0202	from Appendix 3, Table 3
kg harvested	0,0202	data for losses after harvest missing

**Table 4.2: Resource use during onion production**

		comment
kg onion produced	2,02E-02	from mass flows
kg N applied	4,94E-05	Crop budget LiÖL 1994
kg P applied	2,69E-05	Crop budget LiÖL 1994
kg K applied	6,51E-05	Crop budget LiÖL 1994
kg pesticides applied	-	Crop budget LiÖL 1994
litre of diesel	2,47E-04	Crop budget LiÖL 1994
transportation work for farm inputs, tonne-km	5,66E-05	own assumption, 400 km distance

**Table 4.3: Energy use during onion production**

	Low, MJ	comment	High, MJ	comment
N-fertiliser	0,0020	40 MJ per kg N	0,0031	63 MJ per kg N
P-fertiliser	0,0003	9,6 MJ per kg P	0,0010	39 MJ per kg P
K-fertiliser	0,0003	5 MJ per kg P	0,0008	12 MJ per kg K
Pesticides	-	118 MJ per kg active ingredient	-	400 MJ per kg active ingredient
Diesel	0,0094	0,84 kg/litre, 45,3 MJ/kg	0,0098	0,85 kg/litre, 46,9 MJ/kg
transport of farm inputs with lorry	3,66E-05	0,61 MJ/ton-km, 6 % added for production energy	4,44E-05	0,72 MJ/ton-km, 9 % added for production energy
<b>Total</b>	<b>0,012</b>		<b>0,015</b>	

**Table 4.4: Energy use during storage (120 days)**

Low, MJ	comment	High, MJ	comment
0,0039	0,0009 MJ/kg, day, 58% conversion efficiency	0,0093	0,0017 MJ/kg, day, 44% conversion efficiency

**Table 4.5: Energy use during freeze-drying**

	Low, MJ	comment	High, MJ	comment
drying	0,040	18 MJ/kg, 6 % for production energy of oil	0,071	31 MJ/kg, 9 % for production energy of oil
freezing	0,0012	0,32 MJ/kg, 58% conversion efficiency	0,0015	0,32 MJ/kg, 44 % conversion efficiency
<b>Total</b>	<b>0,041</b>		<b>0,073</b>	

**Table 4.6: Energy use during transportation**

	Low, MJ	comment	High, MJ	comment
crop farm-storage, 100 km	0,0032	1,5 MJ/tonne-km, 6 % added for production energy	0,0044	2 MJ/tonne-km, 9 % added for production energy, refrigeration
storage-freeze-drying plant, 300 km	0,0037	0,61 MJ/tonne-km, 6 % added for production energy	0,0045	0,72 MJ/tonne-km, 9 % added for production energy
freeze-drying plant-storage, 300 km	0,0004	0,61 MJ/tonne-km, 6 % added for production energy	0,0005	0,72 MJ/tonne-km, 9 % added for production energy
storage-restaurant, 300 km	0,0011	1,5 MJ/tonne-km 70 % of distance, 2,1 MJ/tonne-km 30 % of distance, 6 % production energy	0,0015	2 MJ/tonne-km 70 % of distance, 2,5 MJ/tonne-km 30 % of distance, 9 % production energy
<b>Total</b>	<b>0,0085</b>		<b>0,011</b>	

## 5. Cucumbers, pickled

**Table 5.1: Mass flows**

kg/Big Mac	0,0074	from section 3.1
kg to restaurant	0,0103	from Appendix 3, Table 3
kg to storage facility	0,0103	data for losses lacking
kg entering processing in canning plant	0,0160	from Appendix 3, Table 1b
kg delivered to canning plant	0,0186	from Appendix 3, Table 3
kg harvested	0,0186	data for losses after harvest missing

**Table 5.2: Resource use during cucumber production**

kg cucumber produced	1,86E-02	from mass flows
kg N applied	3,92E-05	Crop budget LiÖL 1994
kg P applied	2,27E-05	Crop budget LiÖL 1994
kg K applied	5,78E-05	Crop budget LiÖL 1994
kg pesticides applied	-	Crop budget LiÖL 1994
litre of diesel	1,41E-04	Crop budget LiÖL 1994
transportation work for farm inputs, tonne-km	4,79E-05	400 km distance

**Table 5.3: Energy use during cucumber production**

	Low, MJ	comment	High, MJ	comment
N-fertiliser	0,0016	40 MJ per kg N	0,0025	63 MJ per kg N
P-fertiliser	0,0002	9,6 MJ per kg P	0,0009	39 MJ per kg P
K-fertiliser	0,0003	5 MJ per kg P	0,0007	12 MJ per kg K
Pesticides	-	118 MJ per kg active ingredient	-	400 MJ per kg active ingredient
Diesel	0,0054	0,84 kg/litre, 45,3 MJ/kg	0,0056	0,85 kg/litre, 46,9 MJ/kg
transport of farm inputs with lorry	3,0978E-05	0,61 MJ/ton-km, 6 % added for production energy	3,7599E-05	0,72 MJ/ton-km, 9 % added for production energy
<b>Total</b>	<b>0,0074</b>		<b>0,0097</b>	

**Table 5.4: Energy use during storage (30 days)**

Low, MJ	comment	High, MJ	comment
0,0008	0,0009 MJ/kg, day, 58% conversion efficiency	0,0074	0,0017 MJ/kg, day, 44% conversion efficiency

**Table 5.5: Energy use for pickling**

Low, MJ	comment	High, MJ	comment
0,02	0,10 MJ electricity/kg, 58 % conversion efficiency 2 MJ assumed to be oil with 6 % for production energy	0,03	0,15 MJ electricity/kg, 44 % conversion efficiency 2,54 MJ fossil fuel with 6 % for production energy

**Table 5.6: Energy use for transportation**

	Low, MJ	comment	High, MJ	comment
crop farm-storage, 100 km	0,0030	1,5 MJ/tonne-km, 6 % added for production energy	0,0041	2 MJ/tonne-km, 9 % added for production energy, refrigeration
storage-pickling plant, 300 km	0,0039	0,61 MJ/tonne-km, 6 % added for production energy, refrigeration	0,0047	0,72 MJ/tonne-km, 9 % added for production energy, refrigeration
pickling plant-storage, 300 km	0,0020	0,61 MJ/tonne-km, 6 % added for production energy	0,0024	0,72 MJ/tonne-km, 9 % added for production energy
storage-restaurant, 300 km	0,0055	1,5 MJ/tonne-km 70 % of distance, 2,1 MJ/tonne-km 30 % of distance, 6 % production energy	0,0072	2 MJ/tonne-km 70 % of distance, 2,5 MJ/tonne-km 30 % of distance, 9 % production energy
<b>Total</b>	<b>0,014</b>		<b>0,018</b>	

## 6. Cheese

### 6.1 Mass flows

kg/Big Mac	0,015	from section 3.1
kg to restaurant	0,017	from Appendix 3, Table 3
kg to storage facility	0,017	data for losses during storage are missing
kg to dairy plant	0,175	from Appendix 3, Table 1c
kg milked from cow	0,175	from Appendix 3, Table 3
kg feed consumed	0,139	from Appendix 3, Table 9

### 6.2 Resource use during cereals production

		comment
kg cereals produced	3,671E-02	from mass balance
kg N applied	6,508E-04	Crop budget Naturvårdsverket (1997)
kg P applied	1,502E-04	Crop budget Naturvårdsverket (1997)
kg K applied	0,000E+00	Crop budget Naturvårdsverket (1997)
kg pesticides applied	-	Crop budget Naturvårdsverket (1997)
litre of diesel	7,676E-04	Crop budget Naturvårdsverket (1997)
transportation work for farm inputs, tonne-km	3,204E-04	own assumption, 400 km distance

### 6.3 Energy use during cereal production

	Low, MJ	comment	High, MJ	comment
N-fertiliser	0,0258	40 MJ per kg N	0,0410	63 MJ per kg N
P-fertiliser	0,0014	9,6 MJ per kg P	0,0058	39 MJ per kg P
K-fertiliser	0,0000	5 MJ per kg P	0,0000	12 MJ per kg K
Pesticides	-	-	-	-
Diesel	0,029	0,84 kg/litre, 45,3 MJ/kg	0,0306	0,85 kg/litre, 46,9 MJ/kg
transport of farm inputs with lorry	0,0002	0,61 MJ/ton-km, 6 % added for production energy	0,0003	0,72 MJ/ton-km, 9 % added for production energy
<b>Total</b>	<b>0,057</b>		<b>0,078</b>	

### 6.4 Resource use during legume production

		comment
kg legumes produced	0,01505	from mass balance
kg N applied	0,00000	Crop budget Carlsson-Kanyama (1998)
kg P applied	0,00004	Crop budget Carlsson-Kanyama (1998)
kg K applied	0,00017	Crop budget Carlsson-Kanyama (1998)
kg pesticides applied	-	Crop budget Carlsson-Kanyama (1998)
litre of diesel	0,00042	Crop budget Carlsson-Kanyama (1998)
transportation work for farm inputs, tonne-km	0,00008	400 km distance

## 6.5 Energy use during legume production

	Low, MJ	comment	High, MJ	comment
N-fertiliser	0,0000	40 MJ per kg N	0,0000	63 MJ per kg N
P-fertiliser	0,0004	9,6 MJ per kg P	0,0016	39 MJ per kg P
K-fertiliser	0,0008	5 MJ per kg P	0,0020	12 MJ per kg K
Pesticides	-	-	-	-
Diesel	0,0159	0,84 kg/litre, 45,3 MJ/kg	0,0167	0,85 kg/litre, 46,9 MJ/kg
transport of farm inputs with lorry	0,0001	0,61 MJ/ton-km, 6 % added for production energy	0,0001	0,72 MJ/ton-km, 9 % added for production energy
<b>Total</b>	<b>0,0172</b>		<b>0,0204</b>	

## 6.6 Resource use during coarse fodder production

		comment
kg DM coarse fodder produced	0,087	from mass flows
kg N applied	0,0019	Crop budget Naturvårdsverket (1997)
kg P applied	0,00026	Crop budget Naturvårdsverket (1997)
kg K applied	0,00066	Crop budget Naturvårdsverket (1997)
kg pesticides applied	-	Crop budget Naturvårdsverket (1997)
litre of diesel	0,0014	Crop budget Naturvårdsverket (1997)
transportation work for farm inputs, tonne-km	0,0011	400 km distance

## 6.7 Energy use during coarse fodder production

	Low, MJ	comment	High, MJ	comment
N-fertiliser	0,076	40 MJ per kg N	0,12	63 MJ per kg N
P-fertiliser	0,0025	9,6 MJ per kg P	0,010	39 MJ per kg P
K-fertiliser	0,0033	5 MJ per kg P	0,0080	12 MJ per kg K
Pesticides	-	-	-	-
Diesel	0,054	0,84 kg/litre, 45,3 MJ/kg	0,057	0,85 kg/litre, 46,9 MJ/kg
transport of farm inputs with lorry	0,0007	0,61 MJ/ton-km, 6 % added for production energy	0,0009	0,72 MJ/ton-km, 9 % added for production energy
<b>Total</b>	<b>0,14</b>		<b>0,20</b>	

## 6.8 Energy use for drying crops

	Low, MJ	comment	High, MJ	comment
MJ electricity for drying	0,008	0,09 MJ electricity/kg, 58% conversion efficiency	0,011	0,09 MJ electricity/kg, 44% conversion efficiency
MJ oil for drying	0,028	0,01 kg oil/kg, 43,2 MJ/kg oil	0,030	0,01 kg oil/kg, 46,8 MJ/kg oil
<b>Total</b>	<b>0,036</b>		<b>0,040</b>	

### 6.9 Energy use for fodder production

Low, MJ	comment	High, MJ	comment
0,018	0,24 MJ/kg fodder; 50% electricity, 58% conversion efficiency, 50 % steam, 90% conversion efficiency	0,036	0,40 MJ/kg fodder; 50% electricity, 44 % conversion efficiency, 50 % steam, conversion efficiency 80 %

### 6.10 Energy use for milking

Low, MJ	comment	High, MJ	comment
0,10	2423 MJ per cow, year, 7000 kg of milk, conversion efficiency 58 %	0,26	4561 MJ per cow, year, 7000 kg of milk, conversion efficiency 44 %

### 6.11 Energy use for making cheese

Low, MJ	comment	High, MJ	comment
0,052	2,7 MJ steam/kg, conversion efficiency electricity 90%	0,059	2,7 MJ steam/kg, conversion efficiency electricity 80%

### 6.12 Energy use for storage (15 days)

Low, MJ	comment	High, MJ	comment
0,013	0,029 MJ/kg, day, 58% conversion efficiency	0,065	0,11 MJ/kg, day, 44% conversion efficiency

### 6.13 Energy use for transportation

	low		high	
crop farm-dairy farm. 100 km	0,0082	1,5 MJ/tonne-km, 6 % added for production energy	0,011	2 MJ/tonne-km, 9 % added for production energy
dairy farm-dairy, 300 km	0,086	1,5 MJ/tonne-km, 6 % added for production energy, refrigeration	0,12	2 MJ/tonne-km, 9 % added for production energy, refrigeration
dairy-storage, 300 km	0,0039	0,61 MJ/tonne-km + refrigeration, 6 % added for production energy	0,0047	0,72 MJ/tonnekm + refrigeration % added for production energy
storage-restaurant, 300 km	0,010	1,5 MJ/tonnekm 70 % of distance, 2,1 MJ/tonne-km 30 % of distance, 6 % added for production energy, refrigeration	0,014	2 MJ/tonnekm 70 % of distance, 2,1 MJ/tonne-km 30 % of distance added for production energy, refrigeration
<b>Total</b>	<b>0,11</b>		<b>0,15</b>	