Supplementary Material to the Article

How Compatible are Western European Dietary Patterns to Climate Targets? Accounting for Uncertainty of Life Cycle Assessments by Applying a Probabilistic Approach

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Table S1. Greenhouse gas emission values of animal-based foods to compile value ranges for the calculation of diet pattern carbon footprints. Retrieved from a systematic literature review of life cycle assessments. Meat and fish/seafood were corrected to bone and skin-free meat according to Clune et al. (2017)*. CO_2e = carbon dioxide equivalents, CH_4 = methane, N_2O = nitrous oxide

Study*	Food item	Greenhouse gas emission ($kgCO_2e*kg^{-1}$)	Type and/or production system, if specified	Bounds or intervals, if multiple values given	Review for updated greenhouse gas emissions	Type of Life Cycle Assessment	Country	Time frame	GWP100 conversion factors	Allocation method
Abín et al. (2018)	eggs	3.40				attributional	ES	2015	not indicated	process allocation
Badiola et al. (2017)	fish/seafood	43.62	Atlantic cod, aquaculture	upper bound		not indicated	FR	not indicated	not indicated	N/A
Badiola et al. (2017)	fish/seafood	18.90	Atlantic cod, aquaculture	lower bound		not indicated	FR	not indicated	not indicated	N/A
Biermann & Geist (2019)	fish/seafood	9.60	conventional carp			attributional	DE	2016	not indicated	N/A
Biermann & Geist (2019)	fish/seafood	6.72	organic carp			attributional	DE	2016	not indicated	N/A
Bryngelsson et al. (2016)	beef	18.00	dairy cow			not indicated	SE	approx. 2010	34 CH_4/ 298 N_2O	not indicated
Bryngelsson et al. (2016)	beef	21.00	non-dairy beef			not indicated	SE	approx. 2010	34 CH_4/ 298 N_2O	not indicated

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Bryngelsson et al. (2016)	beef	38.00	dairy bulls/steers			not indicated	SE	approx. 2010	34 CH_4/ 298 N_2O	not indicated
Bryngelsson et al. (2016)	cheese	11.00				not indicated	SE	approx. 2010	34 CH_4/ 298 N_2O	not indicated
Bryngelsson et al. (2016)	other dairy	1.20	liquid dairy other than milk			not indicated	SE	approx. 2010	34 CH_4/ 298 N_2O	dairy cows: 90% dairy/10% meat
Bryngelsson et al. (2016)	milk	1.20				not indicated	SE	approx. 2010	34 CH_4/ 298 N_2O	dairy cows: 90% dairy/ 10% meat
Buratti et al. (2017)	beef	40.60	conventional, calf-feedlot		Lynch (2019)*	attributional	IT	not indicated	28 CH_4/ 265 N_2O	N/A
Buratti et al. (2017)	beef	55.40	organic, calf-feedlot		Bryngelsson et al. (2016)*	attributional	IT	not indicated	28 CH_4/ 265 N_2O	N/A
Cederberg et al. (2009)	pork	6.10			Bryngelsson et al. (2016)*	not indicated	SE	approx. 2010	34 CH_4/ 298 N_2O	not indicated
Cederberg et al. (2009)	poultry	2.40			Bryngelsson et al. (2016)*	not indicated	SE	approx. 2010	34 CH_4/ 298 N_2O	not indicated
Cederberg et al. (2009)	eggs	0.97			Bryngelsson et al. (2016*)	not indicated	SE	approx. 2010	34 CH_4/ 298 N_2O	not indicated
Cederberg et al. (2009)	other dairy	11.00	butter		Bryngelsson et al. (2016)*	not indicated	SE	approx. 2010	34 CH_4/ 298 N_2O	dairy cows: 90% dairy/ 10% meat
Clarke et al. (2013)	beef	23.77	calf-feedlot		Lynch (2019)*	attributional	IE	not indicated	28 CH_4/ 265 N_2O	N/A
Clarke et al. (2013)	beef	27.11	calf-pasture-feedlot		Lynch (2019)*	attributional	IE	not indicated	28 CH_4/ 265 N_2O	N/A
Dentler (2020)	milk	1.21				not indicated	DE	2014-2017	not indicated	not indicated
Djekic et al. (2014)	milk	1.25	pasteurized milk	lower bound		not indicated	BR	2011	not indicated	physical allocation
Djekic et al. (2014)	milk	1.67	pasteurized milk	upper bound		not indicated	BR	2011	not indicated	physical allocation
Djekic et al. (2014)	milk	1.24	ultra-high temperature milk	lower bound		not indicated	BR	2011	not indicated	physical allocation

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Djekic et al. (2014)	milk	1.38	ultra-high temperature milk	upper bound		not indicated	BR	2011	not indicated	physical allocation
Djekic et al. (2014)	other dairy	1.42	yoghurt	lower bound		not indicated	BR	2011	not indicated	physical allocation
Djekic et al. (2014)	other dairy	2.63	yoghurt	upper bound		not indicated	BR	2011	not indicated	physical allocation
Djekic et al. (2014)	other dairy	20.69	butter	lower bound		not indicated	BR	2011	not indicated	physical allocation
Djekic et al. (2014)	other dairy	21.30	butter	upper bound		not indicated	BR	2011	not indicated	physical allocation
Djekic et al. (2014)	other dairy	3.53	cream	lower bound		not indicated	BR	2011	not indicated	physical allocation
Djekic et al. (2014)	other dairy	4.53	cream	upper bound		not indicated	BR	2011	not indicated	physical allocation
Djekic et al. (2014)	cheese	5.00		lower bound		not indicated	BR	2011	not indicated	physical allocation
Djekic et al. (2014)	cheese	6.55		upper bound		not indicated	BR	2011	not indicated	physical allocation
Forleo et al. (2018)	cheese	9.65	mozzarella	upper bound		attributional	IT	not indicated	28 CH_4/ 265 N_2O	physical allocation
Forleo et al. (2018)	cheese	9.81	mozzarella	lower bound		attributional	IT	not indicated	28 CH_4/ 265 N_2O	physical allocation
González-García et al. (2013)	poultry	3.25				not indicated	PT	not indicated	not indicated	N/A
Gosalvitr et al. (2019)	cheese	12.33	cheddar			not indicated	UK	not indicated	not indicated	not indicated
Le Féon et al. (2019)	fish/seafood	1.92	trout, mealworm fed 0%			attributional	FR	not indicated	not indicated	N/A
Le Féon et al. (2019)	fish/seafood	2.75	trout, mealworm fed 30%			attributional	FR	not indicated	not indicated	N/A
Liu et al. (2016)	fish/seafood	5.42	salmon, open net farm			attributional	NO	2010-2011	not indicated	N/A
Mogensen et al. (2016)	beef	16.26	conventional cow dairy system			not indicated	DK	not indicated	not indicated	edible/ non-edible products, diary/meat

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Mogensen et al. (2016)	beef	16.83	organic dairy cow dairy system			not indicated	DK	not indicated	not indicated	edible/ non-edible products, diary/meat
Mogensen et al. (2016)	beef	15.25	conventional bull dairy system			not indicated	DK	not indicated	not indicated	edible/ non-edible products, diary/meat
Mogensen et al. (2016)	beef	28.49	conventional steer dairy system			not indicated	DK	not indicated	not indicated	edible/ non-edible products, diary/meat
Mogensen et al. (2016)	beef	27.63	organic steer dairy system			not indicated	DK	not indicated	not indicated	edible/ non-edible products, diary/meat
Mogensen et al. (2016)	beef	18.85	highland cow beef breed system			not indicated	DK	not indicated	not indicated	edible/ non-edible products, diary/meat
Mogensen et al. (2016)	beef	66.76	highland heifer beef breed system			not indicated	DK	not indicated	not indicated	edible/ non-edible products, diary/meat
Mogensen et al. (2016)	beef	61.44	highland bull beef breed system			not indicated	DK	not indicated	not indicated	edible/ non-edible products, diary/meat
Mogensen et al. (2016)	beef	44.75	limousine heifer beef breed system			not indicated	DK	not indicated	not indicated	edible/ non-edible products, diary/meat
Mogensen et al. (2016)	beef	45.18	limousine bull beef breed system	lower bound		not indicated	DK	not indicated	not indicated	edible/ non-edible products, diary/meat

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Mogensen et al. (2016)	beef	46.47	limousine bull beef breed system	upper bound		not indicated	DK	not indicated	not indicated	edible/ non-edible products, diary/meat
Mogensen et al. (2016)	milk	0.88				not indicated	DK	not indicated	not indicated	edible/ non-edible products, diary/meat
Mondello et al. (2018)	cheese	22.13	pecorino			not indicated	IT	not indicated	not indicated	economic allocation
Nguyen et al. (2013)	beef	31.73	calf-pasture-feedlot		Lynch (2019)*	attributional	FR	not indicated	28 CH_4/ 265 N_2O	N/A
Noya et al. (2016)	pork	14.75				not indicated	ES	not indicated	not indicated	no allocation
Nunes et al. (2020)	cheese	14.36	sheep cheese			not indicated	PT	not indicated	not indicated	not indicated
Pirlo et al. (2016)	pork	7.67				not indicated	IT	not indicated	not indicated	economic allocation
Rudolph et al. (2018)	pork	3.73	organic inside	lower bound		not indicated	AT, CZ, DK, FR, DE, IT, CH, UK	2012-2013	not indicated	not indicated
Rudolph et al. (2018)	pork	6.88	organic inside	upper bound		not indicated	AT, CZ, DK, FR, DE, IT, CH, UK	2012-2013	not indicated	not indicated
Rudolph et al. (2018)	pork	3.86	organic partly outdoor	lower bound		not indicated	AT, CZ, DK, FR, DE, IT, CH, UK	2012-2013	not indicated	not indicated
Rudolph et al. (2018)	pork	7.91	organic partly outdoor	upper bound		not indicated	AT, CZ, DK, FR, DE, IT, CH, UK	2012-2013	not indicated	not indicated
Rudolph et al. (2018)	pork	3.42	organic outside	lower bound		not indicated	AT, CZ, DK, FR,	2012-2013	not indicated	not indicated

Study*	Food item	Greenhouse gas emission ($kgCO_2e*kg^{-1}$)	Type and/or production system, if specified	Bounds or intervals, if multiple values given	Review for updated greenhouse gas emissions	Type of Life Cycle Assessment	Country	Time frame	GWP100 conversion factors	Allocation method
Rudolph et al. (2018)	pork	8.09	organic outside	upper bound		not indicated	DE, IT, CH, UK AT, CZ, DK, FR, DE, IT, CH, UK	2012-2013	not indicated	not indicated
Salou et al. (2016)	milk	1.40	highland			not indicated	FR	not indicated	not indicated	economic and physical allocation
Salou et al. (2016)	milk	0.92	organic			not indicated	FR	not indicated	not indicated	economic and physical allocation
Salou et al. (2016)	milk	0.98	grass			not indicated	FR	not indicated	not indicated	economic and physical allocation
Salou et al. (2016)	milk	0.99	intensive grass			not indicated	FR	not indicated	not indicated	economic and physical allocation
Salou et al. (2016)	milk	0.93	maize fed			not indicated	FR	not indicated	not indicated	economic and physical allocation
Salou et al. (2016)	milk	1.17	intensive maize fed			not indicated	FR	not indicated	not indicated	economic and physical allocation
Salou et al. (2016)	milk	1.12	very intensive maize fed			not indicated	FR	not indicated	not indicated	economic and physical allocation
Samárason et al. (2017)	fish/seafood	3.55	arctic char, aquaculture			not indicated	IS	not indicated	not indicated	not indicated
Samsostuen et al. (2019)	beef	45.05	beef cattle herd flatland			not indicated	GB	not indicated	28 CH_4/ 265 N_2O	not indicated
Samsostuen et al. (2019)	beef	45.61	beef cattle herd mountain			not indicated	GB	not indicated	28 CH_4/ 265 N_2O	not indicated
Samsostuen et al. (2019)	beef	42.63	beef cattle herd flatland			not indicated	NO	not indicated	28 CH_4/ 265 N_2O	not indicated

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Samsostuen et al. (2019)	beef	43.01	beef cattle herd mountain			not indicated	NO	not indicated	28 CH_4/ 265 N_2O	not indicated
Sykes et al. (2019)	beef	32.35	beef suckler system	5% confidence interval		not indicated	UK	not indicated	not indicated	economic allocation
Sykes et al. (2019)	beef	48.87	beef suckler system	95% confidence interval		not indicated	UK	not indicated	not indicated	economic allocation
Vellinga & de Vries (2018)	milk	1.23	beef/dairy system			attributional	NL	not indicated	not indicated	physical and economic allocation
Veysset et al. (2010)	beef	32.00	calf-pasture-feedlot grass-fed		Lynch (2019)*	attributional	FR	not indicated	28 CH_4/ 265 N_2O	N/A
Veysset et al. (2010)	beef	30.68	calf-pasture feedlot		Lynch (2019)*	attributional	FR	not indicated	28 CH_4/ 265 N_2O	N/A
Veysset et al. (2010)	beef	27.96	calf-pasture feedlot		Lynch (2019)*	attributional	FR	2010-2011	28 CH_4/ 265 N_2O	N/A
Winkler et al. (2016)	pork	7.66				not indicated	AT	not indicated	36 CH_4/ 298 N_2O	not indicated
Winther et al. (2009)	fish/seafood	3.00	wild fish		Bryngelsson et al. (2016)*	not indicated	NO	approx. 2010	34 CH_4/ 298 N_2O	not indicated
Winther et al. (2009)	fish/seafood	6.60	farmed fish		Bryngelsson et al. (2016)*	not indicated	NO	approx. 2010	34 CH_4/ 298 N_2O	not indicated
Zehetmeier et al. (2020)	milk	1.81		upper bound		not indicated	DE	2013	28 CH_4/ 265 N_2O	economic allocation
Zehetmeier et al. (2020)	milk	0.82		lower bound		not indicated	DE	2013	28 CH_4/ 265 N_2O	economic allocation

* For full citations see citations [47, 66-96] in the article.