

Online Supporting Information for

**Missing food, missing data? A critical review of global food losses and
food waste data**

Li Xue ^{†,‡}, Gang Liu ^{*,§}, Julian Parfitt ^{||}, Xiaojie Liu [†], Erica Van Herpen [⊥], Åsa
Stenmarck [#], Clementine O'Connor [@], Karin Östergren [∇], and Shengkui Cheng [†]

[†] Institute of Geographic Sciences and Natural Resources Research, Chinese
Academy of Sciences, 100101 Beijing, China

[‡] University of Chinese Academy of Sciences, 100049 Beijing, China

[§] SDU Life Cycle Engineering, Department of Chemical Engineering, Biotechnology,
and Environmental Technology, University of Southern Denmark, 5230 Odense,
Denmark

// Anthesis Group, Oxford OX4 1RE, United Kingdom

[⊥] Marketing and Consumer Behavior Group, Wageningen University, Wageningen
6708 PB, The Netherlands

[#] IVL Swedish Environmental Research Institute, 114 27 Stockholm, Sweden

[@] World Resources Institute, Washington, DC 20002, United States

[∇] RISE Bioscience and Materials, Agrifood and Bioscience, 223 70 Lund, Sweden

Corresponding Author

*E-mail: gli@kbm.sdu.dk and geoliugang@gmail.com; tel.: + 45 65509441.

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1. Literature selection from Web of Science

Web of Science was first chosen as the literature database for this research. “Food waste” or “food losses” were used as keywords in the search of journal article titles, and only articles published in English by December 2015 were filtered from the database. We then explored the 15 most relevant Web of Science categories (Environmental sciences, Engineering environmental, Agricultural engineering, Soil science, Water resources, Food science technology, Ecology, Nutrition dietetics, Agronomy, Agriculture multidisciplinary, Agriculture economics policy, Economics, Sociology, Environmental studies, and Multidisciplinary sciences) and also the 10 most relevant Web of Science research areas (Environmental sciences ecology, Engineering, Agriculture, Business economics, Sociology, Water resources, Science technology other topics, Food science technology, Nutrition dietetics, and Public environmental occupational health) in the filtering. In the end, we screened out 546 papers from Web of Science.

2. Additional Figures

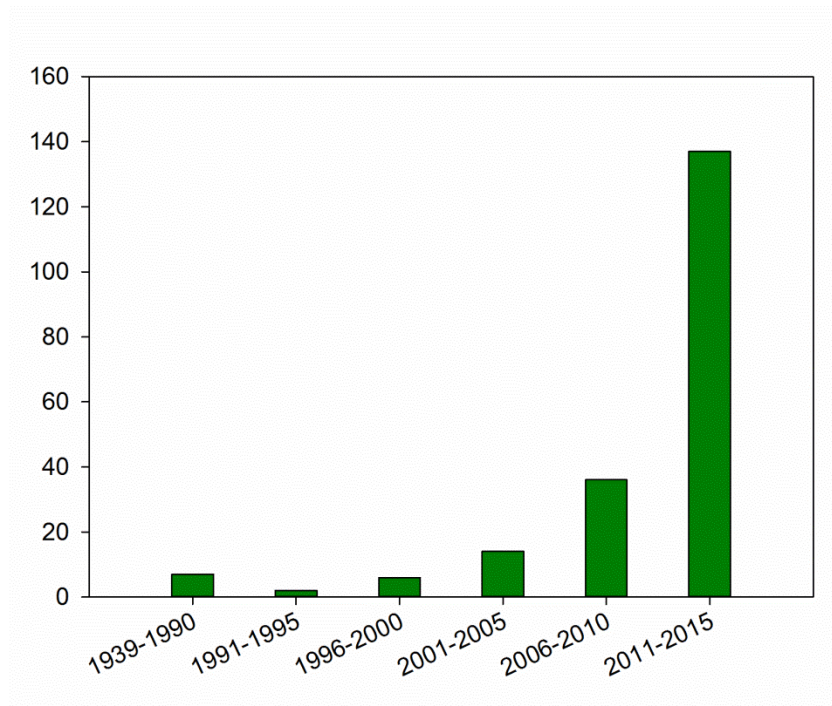


Figure S1. Temporal trend of FLW research in terms of year of publication. Figure S1 shows the number of publications increases over 76-year period (1939-2015). In total, the number of publications increases throughout the whole period. It is small (below 10) and remains stable before 2000. From then on, the trend shows a gradual growth during the period of 2001-2010. In the last five years, there is a substantial rise in the number of studies (137), making up 67.8% of the total publications, which indicates an increasing attention has been paid on FLW research around the world.

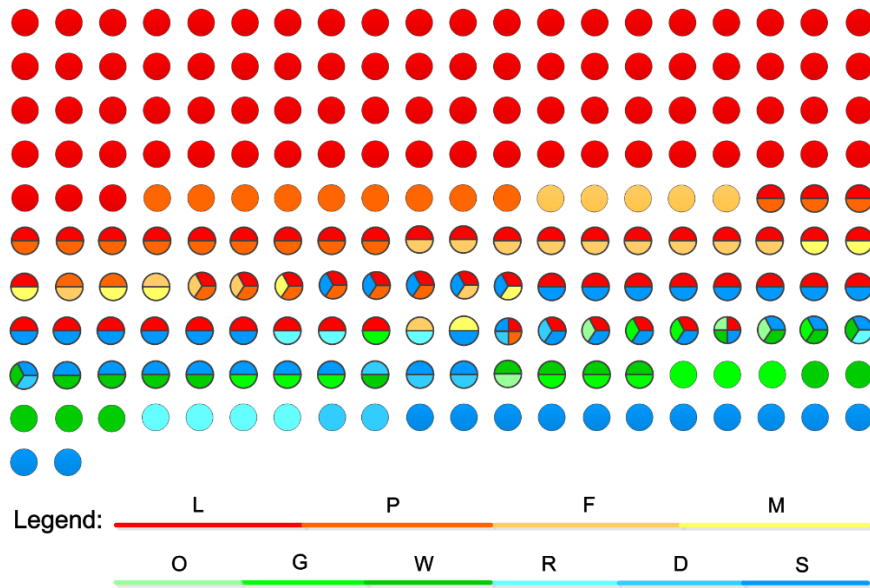


Figure S2. An overview of the methods used in the reviewed 202 publications. Each circle represents one publication, and the colors indicate different methods used. Direct measurement includes: Weighing (W), Garbage collection (G), Surveys (S), Diaries (D), Records (R) and Observation (O). Surveys also contain questionnaires, interviews and experts estimation. Indirect measurement involves: Use of literature data (L), Use of proxy data (P), Food balance (F) and Modeling (M).

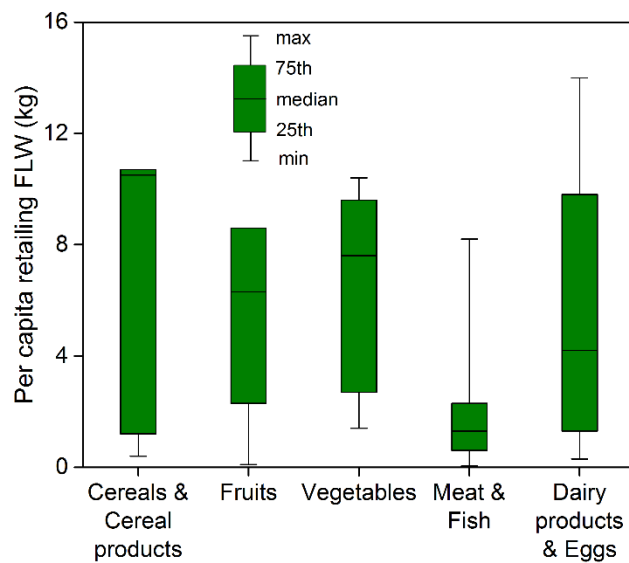


Figure S3. Per capita FLW of different food commodities at retailing stage in the U.S.

(see data in Table S8 below)

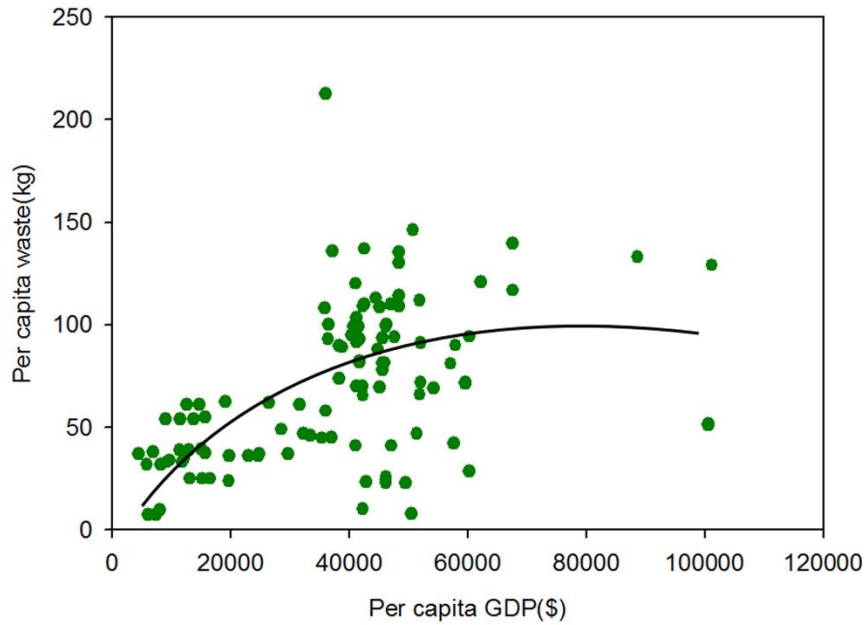


Figure S4. Relationship between per capita GDP and per capita food waste generated in households, with Australia visualized (the point on top). It is reported that Australia has formally disposed 4.4 million tonnes of food waste (mainly disposed to landfill) over 8.4 million households in 2006, when divided by population, the amount of per capita waste is obtained at over 200 kg.

3. Tables of meta-data used in the paper

Table S1 Meta-data of all reviewed publications

No.	Reference	Symbol	Year of publication	Year of estimation	Method	Region coverage	Country coverage	Life cycle coverage
1	WRI ¹	RT	1998	1996	L	Southeast Asia	Philippines	P1,P2,P4
2	Davies & Konisky ²	RT	2000	1995,1997,1998	L		USA	P5,P6b
3	Buzby & Guthrie ³	RT	2002	1992,1993,1996,1997	L		USA	P6b
4	Kachru & General ⁴	RT	2002	2000	L		India, Sri Lanka, Bangladesh	TPH
5	Jones ⁵	RT	2005	2003	L & E		USA	P4,P6a,P6b
6	Garnett ⁶	RT	2006	1995,2001,2004	L	Developed & Developing world	UK	P1,P3,P4,P6
7	WRAP ⁷	RT	2007	2005	L		UK	P6a
8	Hogg et al. ⁸	RT	2007	2004	L		UK	P6a
9	WRAP ⁹	RT	2008	2007	I & G		UK	P6a
10	Buzby et al. ¹⁰	RT	2009	2005,2006	L		USA	P5
11	WRAP ¹¹	RT	2009	2007	L		UK	P6a
12	Hossain & Miah ¹²	RT	2009	2008	L & S & M		Bangladesh	P1,P2,P4,P6a
13	Morgan ¹³	RT	2009	2004,2006,2007	L		Australia, UK	P1,P3,P4,P6a

No.	Reference	Symbol	Year of publication	Year of estimation	Method	Region coverage	Country coverage	Life cycle coverage
14	UNEP ¹⁴	RT	2009	1995,2007	L & P	Africa	USA, Kenya, India, Uganda, Tanzania	P1,P4
15	Lee et al. ¹⁵	RT	2010	1998,2002, 2006-2008	L & P		UK	P3,P4,P5,P6a,P6b
16	Waste & Recovery ¹⁶	RT	2010	1996,2008	L		USA	TFLW
17	Thönissen ¹⁷	RT	2010	2008	P		Netherlands	P6a
18	Sonesson et al. ¹⁸	RT	2010	2008	L		UK	P6a
19	PMSEIC ¹⁹	RT	2010	2008	L		Australia	P6a
20	Monier et al. ²⁰	RT	2010	2006	L & P		EU27	P3,P6a
21	Bala et al. ²¹	RT	2010	2008	L & S	Southeast Asia	Bangladesh	P1,P2,P3,P4,P5
22	Gooch et al. ²²	RT	2010	2007,2008	L & S & P		Canada	P1,P3,P4,P5,P6a,P6b
23	Holding et al. ²³	RT	2010	2008	P		UK	P6a
24	Muth et al. ²⁴	RT	2011	2006	P & F		USA	P6
25	WRAP ²⁵	RT	2011	2006,2010	P		UK	P6a
26	African Postharvest Losses Information System ²⁶	RT	2011	2009	L		Ethiopia, Uganda, Zambia, Swaziland, Zimbabwe, Madagascar	P1,P2,P4
27	European Food SCP Round Table Working Group 3 ²⁷	RT	2011	2009	L		EU27,Spain	P6a
28	Gooch et al. ²⁸	RT	2011	2009	L		Canada	P1,P3,P4,P5,P6a,P6b

No.	Reference	Symbol	Year of publication	Year of estimation	Method	Region coverage	Country coverage	Life cycle coverage
29	Grethe et al. ²⁹	RT	2011	1978,2009	L	Developing & developed countries	UK, Turkey, USA, Philippines	P6a
30	Gustavsson et al. ³⁰	RT	2011	2007,2009	F & M	Europe incl. Russia, North America & Oceania, Industrialized Asia, Sub-Saharan Africa, North Africa, West & Central Asia, South & Southeast Asia, Latin America		P1, P2, P3,P4, P6a
31	Moreno ³¹	RT	2011	2009	L & P		USA	TFLW
32	Morgan & Robertson ³²	RT	2011	2009	L	Rich countries	USA	P6a
33	Stenmarck et al. ³³	RT	2011	2009	L		UK, Japan, USA, Norway, Denmark, Finland, Sweden	P4
34	World Bank ³⁴	RT	2011	2009	L & P & F	Eastern & Southern Africa	Ghana	P1,P2,P4
35	WRAP ³⁵	RT	2011	2009	S & G		UK	P6b
36	Office of Environment & Heritage ³⁶	RT	2011	2009	I		Australia	P6a

No.	Reference	Symbol	Year of publication	Year of estimation	Method	Region coverage	Country coverage	Life cycle coverage
37	Escaler & Teng ³⁷	RT	2011	1982,2008,2009	L	Global	India, UK	P1,P3,P6a
38	Barilla Center for Food & Nutrition (BCFN) ³⁸	RT	2012	2009,2010	L & P		EU27,USA	P1,P3,P4,P6a,P6b
39	Gooch ³⁹	RT	2012	2008-1010	L & P		USA, Canada	P1,P3,P4,P5,P6a,P6b
40	Gunders ⁴⁰	RT	2012	2010	L	Northern Africa	USA	P1,P2,P3,P4,P6
41	Kranert et al. ⁴¹	RT	2012	2010	L & S & P		Germany	P3,P5,P6a,P6b
42	Marthinsen et al. ⁴²	RT	2012	2004,2008-2010,2012	L & S		Denmark, Finland, Norway, Sweden, Slovenia, Austria, France, Estonia, Germany, UK	P6b
43	Reardon et al. ⁴³	RT	2012	2010	L & S		Bangladesh, China, India	TFLW
44	Zhou et al. ⁴⁴	RT	2012	1978,1980,1985,1990,1995-2007	F		China	TFLW
45	Silvennoinen ⁴⁵	RT	2012	2010	S & W		Finland	P6a,P6b

No.	Reference	Symbol	Year of publication	Year of estimation	Method	Region coverage	Country coverage	Life cycle coverage
46	FAO ⁴⁶	RT	2013	2007	L & F	Industrialized Asia, South & Southeast Asia, Europe, North Africa, West & Central Asia, Sub-Saharan Africa, Latin America		TFLW
47	Gustavsson et al. ⁴⁷	RT	2013	2007	F	Europe incl. Russia, North America & Oceania, Industrialized Asia, Sub-Saharan Africa, North Africa, West & Central Asia, South & Southeast Asia, Latin America		P1,P2,P3,P4,P6a
48	Holm ⁴⁸	RT	2013	2011	L		Armenia, Turkey	P1,P2,P3,P4,P6a
49	Lipinski et al. ⁴⁹	RT	2013	2009	L	Europe incl. Russia, North America & Oceania, Industrialized Asia, Sub-Saharan Africa, North Africa, West & Central Asia, South & Southeast Asia, Latin America		P1,P2,P3,P4,P6

No.	Reference	Symbol	Year of publication	Year of estimation	Method	Region coverage	Country coverage	Life cycle coverage
50	Springer et al. ⁵⁰	RT	2013	2011	L & F	Europe incl. Russia, North America & Oceania, Industrialized Asia, Sub-Saharan Africa, North Africa, West & Central Asia, South & Southeast Asia, Latin America		TFLW
51	Verghese et al. ⁵¹	RT	2013	2011,2012	L		Australia	P3,P5,P6a,P6b
52	Kelleher ⁵²	RT	2013	2011	L	Europe incl. Russia, North America & Oceania, Industrialized Asia, Sub-Saharan Africa, North Africa, West & Central Asia, South & Southeast Asia, Latin America	Netherlands, UK, France	P1,P2,P4,P6a
53	Federal Ministry of Food Agriculture and Consumer Protection (BMELV) ⁵³	RT	2013	2010,2011	L		Germany	TPH

No.	Reference	Symbol	Year of publication	Year of estimation	Method	Region coverage	Country coverage	Life cycle coverage
54	Spescha & Reutimann ⁵⁴	RT	2013	2011	L	Global	Switzerland	P1, P3, P5, P6a
55	Bond et al. ⁵⁵	RT	2013	2011	L	Europe, North America, Sub-Saharan Africa, South/Southeast Asia	UK	P6a
56	Buzby, Wells & Hyman ⁵⁶	RT	2014	2010	F		USA	P4,P6
57	WRAP ⁵⁷	RT	2014	2007,2012	L		UK	P6a
58	Bagherzadeh et al. ⁵⁸	RT	2014	2011	L		EU27	P6a,P6b
59	Britz et al. ⁵⁹	RT	2014	2006	L		EU27	P6a
60	FAO ⁶⁰	RT	2014	2012	L & F		Kenya, Germany, Philippines, UK, Switzerland, Italy, Australia	P1,P2,P4,P6a,P6b
61	Gijseghem ⁶¹	RT	2014	2012	S		Belgium	P1,P3,P4,P6a,P6b
62	Gooch & Felfel ⁶²	RT	2014	2000,2010, 2012,2014	L & S & P		Canada, UK	P1,P4,P5,P6a,P6b
63	Kaminski & Christiaensen ⁶³	RT	2014	2009,2010, 2012	L & S	Sub-Saharan Africa	Malawi, Uganda	P2

No.	Reference	Symbol	Year of publication	Year of estimation	Method	Region coverage	Country coverage	Life cycle coverage
64	Segrè et al. ⁶⁴	RT	2014	2010,2012	L	Eastern & Southern Africa, Europe incl. Russia, North America & Oceania, Industrialized Asia, Sub-Saharan Africa, North Africa, West & Central Asia, South & Southeast Asia, Latin America	Italy	P1,P6a
65	The Economist Intelligence Unit 2014 ⁶⁵	RT	2014	2007,2009	L		Finland, Norway, Cameroon, Ghana, Singapore, USA, UK, Benin, Togo, Angola	P1
66	Themen ⁶⁶	RT	2014	2013	L & S & F		Armenia, Turkey, Ukraine	P1,P2,P4,P6
67	Winkworth-Smith et al. ⁶⁷	RT	2014	2010,2012	L		India, Sri Lanka, Bangladesh, Nepal, Pakistan, Cambodia, Laos, Vietnam, USA, Germany, Austria	P1,P3,P4,P5,P6a,P6b

No.	Reference	Symbol	Year of publication	Year of estimation	Method	Region coverage	Country coverage	Life cycle coverage
68	Winkworth-Smith et al. ⁶⁸	RT	2014	2010	F		USA	P5,P6
69	Liu ⁶⁹	RT	2014	1992,2004, 2007,2008, 2010-2012	L		China	P1,P2,P3,P4,P6a,P6b
70	Carr & Downing ⁷⁰	RT	2014	2012,2013	L		UK	P6a,P6b
71	Okawa ⁷¹	RT	2015	2010,2013	L		UK,USA	P6a
72	Parry et al. ⁷²	RT	2015	2000,2005-2013	L	Europe incl. Russia, North America & Oceania, Industrialized Asia	Japan, UK	P6a
73	Cathcart & Murray ⁷³	J	1939	1937	L		UK	P6a
74	Kling ⁷⁴	J	1943	1940,1941	L		USA	P1,P2,P4,P5,P6
75	Dowler ⁷⁵	J	1977	1975	W & G		USA	P6a
76	Wenlock et al. ⁷⁶	J	1980	1976	S & D		UK	P6a
77	Smil ⁷⁷	J	1981	1977	L		China	TFLW

No.	Reference	Symbol	Year of publication	Year of estimation	Method	Region coverage	Country coverage	Life cycle coverage
78	Khan & Burney ⁷⁸	J	1989	1987	L & M		USA, Italy, India, Saudi Arabia, Austria, Japan, France, Germany, Sweden, Australia, Myanmar, Netherlands, Nigeria, New Zealand, Columbia, Pakistan, Philippines, Spain, Nigeria, Bangladesh, Indonesia	TFLW
79	Pimentel ⁷⁹	J	1990	1988	L		USA	P2
80	Aidoo ⁸⁰	J	1993	1976,1991	L		India, Nigeria, Bangladesh	P2
81	Smil ⁸¹	J	1994	1990	L	Global		
82	Kantor et al. ⁸²	J	1997	1995	F		USA	TFLW
83	Hackes et al. ⁸³	J	1997	1995	W		USA	P6b
84	Edwards & Nash ⁸⁴	J	1999	1997	O & W		UK	P6b
85	Barton et al. ⁸⁵	J	2000	1998	W		UK	P6b
86	Fehr & Romão ⁸⁶	J	2001	1999	S & G		Brazil	P5
87	Hyde et al. ⁸⁷	J	2001	1993	L		UK	P3,P5,P6b

No.	Reference	Symbol	Year of publication	Year of estimation	Method	Region coverage	Country coverage	Life cycle coverage
88	Fehr et al. ⁸⁸	J	2002	1998	W		Brazil	P5
89	Heller & Keoleian ⁸⁹	J	2003	1995,1998	L		USA	TFLW
90	Li et al. ⁹⁰	J	2003	2001	W & G			P6b
91	Engström & Carlsson-Kanyama ⁹¹	J	2004	1984,2001	L & W & O & S		Sweden	P6b
92	Smil ⁹²	J	2004	2002	L		China	P1,P2,P4
93	Russ & Meyer-Pittroff ⁹³	J	2004	2002	L & S		Germany	P1
94	Harrington et al. ⁹⁴	J	2005	2002	L		USA	P1
95	Kader ⁹⁵	J	2005	2003	L		Egypt, Venezuela	TPH
96	Sonesson et al. ⁹⁶	J	2005	2003	I & S & D		Sweden	P6a
97	El-Mobaidh et al. ⁹⁷	J	2006	2004	W		Egypt	P6b
98	Caswell ⁹⁸	J	2008	2006	L		UK	P6a
99	Liu et al. ⁹⁹	J	2008	2005	L	Global		P1
100	Okazaki et al. ¹⁰⁰	J	2008	2005,1998, 2002	L & S		USA	P3,P6b
101	Griffin et al. ¹⁰¹	J	2009	1999,2007	L & S		USA	P1,P3,P5,P6a,P6b
102	Hall et al. ¹⁰²	J	2009	1974,2003	L & M		USA	TFLW
103	Langley et al. ¹⁰³	J	2009	2007	S		UK	P6a
104	Ritter et al. ¹⁰⁴	J	2009	1933-1947, 1950,1951	L		USA	P4

No.	Reference	Symbol	Year of publication	Year of estimation	Method	Region coverage	Country coverage	Life cycle coverage
105	Davies et al. ¹⁰⁵	J	2009	1997,1999-2004,2007	L		Argentina, Australia, Bangladesh, Brazil, Canada, Chile, China, India, Japan, Vietnam Indonesia, Malaysia, Mexico, Myanmar, New Zealand, Peru, Pakistan, Russian, Philippines, Sri Lanka, Thailand, USA, Venezuela	P1
106	Langley et al. ¹⁰⁶	J	2010	2008	D		UK	TFLW
107	Parfitt et al. ¹⁰⁷	J	2010	2008	L		USA, UK, Malaysia, Philippines, Iran, Thailand, Brazil, Bolivia, India, Philippines, China, Vietnam, Zambia, India, Kenya, Nepal, Malawi, Egypt, Venezuela, India, Indonesia, South Korea, Sri Lanka	TPH

No.	Reference	Symbol	Year of publication	Year of estimation	Method	Region coverage	Country coverage	Life cycle coverage
108	Atanda et al. ¹⁰⁸	J	2011	2009	L	Developing & developed countries		TPH
109	Buzby et al. ¹⁰⁹	J	2011	2008	L & P		USA	P5,P6
110	Gustavsson & Stage ¹¹⁰	J	2011	2009	S		Sweden	P5
111	Hodges et al. ¹¹¹	J	2011	2007,2008	L & F	East & southern Africa (16 countries)	USA	P5,P6
112	Prusky ¹¹²	J	2011	2003-2009	L & P	Africa	USA	P5
113	Lebersorger & Schneider ¹¹³	J	2011	2009	G		Austria	P6a
114	Sonnino & McWilliam ¹¹⁴	J	2011	2009	I & W & O		UK	P6b
115	Harcourt ¹¹⁵	J	2011	2008,2009	L		UK	P3,P5,P6a
116	Begum ¹¹⁶	J	2012	2009	I & M		Bangladesh	P1,P2,P4
117	Buzby & Hyman ¹¹⁷	J	2012	2008	L & F		USA	P5,P6
118	Eriksson et al. ¹¹⁸	J	2012	2010	R & F		Sweden	P5
119	Mashau et al. ¹¹⁹	J	2012	2011	S		South Africa	P5
120	Nahman et al. ¹²⁰	J	2012	2010	L		South Africa	P6a
121	Oelofse & Nahman ¹²¹	J	2012	2007,2010	L & F	Sub-Saharan Africa	South Africa	P1, P2, P3,
122	Smit et al. ¹²²	J	2012	2010	S	Europe	Netherlands	P4, P6a
123	Venkat ¹²³	J	2012	2009	M & P		USA	P1, P4, P5, P6a
124	Williams et al. ¹²⁴	J	2012	2010	D		Sweden	P6a

No.	Reference	Symbol	Year of publication	Year of estimation	Method	Region coverage	Country coverage	Life cycle coverage
125	Beretta et al. ¹²⁵	J	2013	2011	L		Switzerland	P6a
126	Gao et al. ¹²⁶	J	2013	2008,2011	L		China	P6a
127	Gjerris & Gaiani ¹²⁷	J	2013	2010,2011	L & P		Finland, Denmark, Norway, Sweden,	P6a,P6b
128	Grizzetti et al. ¹²⁸	J	2013	2007	L	Global		P3,P5,P6a
129	Karim Ghani et al. ¹²⁹	J	2013	2002-2007, 2010	L		Malaysia	P6a
130	Kim et al. ¹³⁰	J	2013	2001-2006	L		South Korea	TFLW
131	Lal ¹³¹	J	2013	1996,1997, 2011	L		USA,UK	TFLW
132	Liu et al. ¹³²	J	2013	2010	L & M		China	P1,P2,P4,P6
133	Lou et al. ¹³³	J	2013	2011	L		Australia	TFLW
134	Nahman & de Lange ¹³⁴	J	2013	2011	L & F	Sub-Saharan Africa	South Africa	P1,P2,P3,P4,P6a
135	Oberlin ¹³⁵	J	2013	1997,2002, 2004,2011	L & S & O		Tanzania	P6a
136	Whitehair et al. ¹³⁶	J	2013	2011	S & W & R		USA	P6b

No.	Reference	Symbol	Year of publication	Year of estimation	Method	Region coverage	Country coverage	Life cycle coverage
137	Zorpas & Lasaridi ¹³⁷	J	2013	2011	L	Eastern Asia, South-Central Asia, Southeast Asia, Western Asia & Middle East, Eastern Africa, Middle Africa, Northern Africa, Southern Africa, Western Africa,		TFLW
138	An et al. ¹³⁸	J	2014	2011	L & P		China	TFLW
139	Bernstad Saraiva Schott & Andersson ¹³⁹	J	2014	2008	G		Sweden	P6a
140	Blanke ¹⁴⁰	J	2014	2012	L		UK, Netherlands, Germany	P6a,P6b
141	Br äutigam et al. ¹⁴¹	J	2014	2004,2006, 2008,2010, 2012	L & F	Europe	EU27	P1.P2,P3,P4,P6
142	Eriksson et al. ¹⁴²	J	2014	2010,2011	R		Sweden	P5
143	Gangwar et al. ¹⁴³	J	2014	2012	L		India	TPH
144	Heller & Keoleian ¹⁴⁴	J	2014	2010	P		USA	TFLW
145	Hickey & Ozbay ¹⁴⁵	J	2014	2012	P		USA	TFLW

No.	Reference	Symbol	Year of publication	Year of estimation	Method	Region coverage	Country coverage	Life cycle coverage
146	Katajajuuri et al. ¹⁴⁶	J	2014	2010,2012	L & S & D		Finland	P3,P5,P6a,P6b
147	Lebersorger & Schneider ¹⁴⁷	J	2014	2005,2006,2011,2012	L & P		Austria, Germany, Switzerland, UK, USA, Norway, Sweden	P5
148	Machell et al. ¹⁴⁸	J	2014	2012	L	Global		TFLW
149	Mena et al. ¹⁴⁹	J	2014	2012	S		UK	P1.P2,P3,P5
150	Naziri et al. ¹⁵⁰	J	2014	2012	S		Ghana, Nigeria, Thailand, Vietnam	P1,P4
151	Papargyropoulou et al. ¹⁵¹	J	2014	2012	L & S		Malaysia, USA, UK	P6b
152	Reynolds et al. ¹⁵²	J	2014	2006	L		Australia	P6a
153	Rossaint & Kreyenschmidt ¹⁵³	J	2014	2012	L & S		Germany	P3,P4,P5,P6
154	Saccares et al. ¹⁵⁴	J	2014	2011,2012	S		Italy	P6b
155	Suthar & Singh ¹⁵⁵	J	2014	2011,2012	L & S & G		India, China, Bangladesh, Nepal, Vietnam, Nigeria	P6a
156	Bernstad ¹⁵⁶	J	2014	2012	G		Sweden	P6a
157	Edjabou et al. ¹⁵⁷	J	2014	2012,2013	L & G		Denmark	P6a
158	Halloran et al. ¹⁵⁸	J	2014	2012	L		Denmark	P1,P3,P5,P6a
159	Betz et al. ¹⁵⁹	J	2015	2013	S & W		Switzerland	P6b

No.	Reference	Symbol	Year of publication	Year of estimation	Method	Region coverage	Country coverage	Life cycle coverage
160	Blanke ¹⁶⁰	J	2015	2013	L		UK, Netherlands, Germany	P3,P5,P6a,P6b
161	Chen et al. ¹⁶¹	J	2015	2010	P		China	TFLW
162	Dias-Ferreira et al. ¹⁶²	J	2015	2014	W		Portugal	P6b
163	Fine et al. ¹⁶³	J	2015	2013	S		France	P1,P3,P4
164	Grandhi & Appaiah Singh ¹⁶⁴	J	2015	2013	P		Singapore	TFLW
165	Jörissen et al. ¹⁶⁵	J	2015	2013	L & S		Italy, Germany, Austria, Finland, Sweden, UK Netherlands	P6a
166	Lo & Woon ¹⁶⁶	J	2015	2013	L		China	P3,P6a
167	Lo & Woon ¹⁶⁷	J	2015	2010	L & S & P		USA	P2,P5,P6
168	Love et al. ¹⁶⁸	J	2015	2009-2013	L & P		USA	TFLW
169	Rajabi et al. ¹⁶⁹	J	2015	2013	L & S		Iran	P1,P2,P3,P4,P6
170	Rispo et al. ¹⁷⁰	J	2015	2013	L & S & G		UK	TFLW
171	Scholz et al. ¹⁷¹	J	2015	2013	R		Sweden	P5
172	Silvennoinen et al. ¹⁷²	J	2015	2010	D & W		Finland	P6b
173	Song et al. ¹⁷³	J	2015	2013	P		China	P6a

No.	Reference	Symbol	Year of publication	Year of estimation	Method	Region coverage	Country coverage	Life cycle coverage
174	Thi et al. ¹⁷⁴	J	2015	2013	L		Australia, UK, Denmark, Sweden, Singapore, China, Netherlands, USA, Germany, Brazil, South Korea, India, Turkey, Malaysia, Mexico, Costa Rica, Romania, Thailand, South Africa, Vietnam, Belarus, Jamaica, Ukraine, Nigeria	TFLW
175	Vanham et al. ¹⁷⁵	J	2015	2013	L		UK, Netherlands, Denmark, Finland, Germany, Romania	P6a
176	Verghese et al. ¹⁷⁶	J	2015	2013	L		Australia	P3,P5,P6a,P6b
177	Willersinn et al. ¹⁷⁷	J	2015	2013,2014	L & P & S & D		Switzerland, USA, Germany, UK	P2,P3,P3,P5,P6a,P6b
178	Xu et al. ¹⁷⁸	J	2015	2013	L		UK	P6a
179	Falasconi et al. ¹⁷⁹	J	2015	2011	S & W		Italy	P6b
180	Thyberg et al. ¹⁸⁰	J	2015	1995-2013	L & P & M		USA	TFLW
181	Okazaki ¹⁸¹	T	2006	1998,2003,2004	L & S		USA	P3,P5,P6b

No.	Reference	Symbol	Year of publication	Year of estimation	Method	Region coverage	Country coverage	Life cycle coverage
182	Gustavsson ¹⁸²	T	2010	2008	S		Sweden	P5
183	Pham ¹⁸³	T	2011	2011	S & W & G		UK	P6a
184	Stefan et al. ¹⁸⁴	T	2011	2011	S		Romania	P6a
185	Whitehair ¹⁸⁵	T	2011	2011	S & W		USA	P6b
186	Eriksson ¹⁸⁶	T	2012	2010,2011	L & R		Sweden	P5
187	Nilsson ¹⁸⁷	T	2012	2010,2011	R		Sweden	P5
188	Marra ¹⁸⁸	T	2013	2010	L		Japan	P3,P6a
189	Blomgren & Bylund ¹⁸⁹	T	2013	2010	L		Sweden	P3,P5,P6a,P6b
190	Stoner ¹⁹⁰	T	2013	2011,2013	L & S	North American & European		P3,P4,P5
191	Zhou ¹⁹¹	T	2014	2014	R		Sweden	P5
192	Eriksson ¹⁹²	T	2015	2010-2014	L & R		Sweden, Finland, Germany, USA, Switzerland, Brazil, Norway, Austria	P5
193	Schneider ¹⁹³	CP	2007	2005	L		Switzerland, Germany, Austria	P6a
194	Baker ¹⁹⁴	CP	2010	2008,2009	S		Australia	P6a
195	Gruszkowski ¹⁹⁵	CP	2010	2010	L	EU27		P3,P5,P6a,P6b
196	Papargyropoulou ¹⁹⁶	CP	2012	2002,2010	P		Malaysia	TFLW
197	Silvennoinen et al. ¹⁹⁷	CP	2012	2010	S & D & W		Finland	P6a,P6b

No.	Reference	Symbol	Year of publication	Year of estimation	Method	Region coverage	Country coverage	Life cycle coverage
198	Silvennoinen & Korhonen ¹⁹⁸	CP	2013	2012	W & G		Finland	P6a
199	Choudhury ¹⁹⁹	B	2006	2004	L		Pakistan, Nepal	P2,P4,P5
200	Oreopoulou & Tzia ²⁰⁰	B	2007	2005	L	Global		TFLW
201	Hanssen et al. ²⁰¹	B	2012	2008,2010	L		Norway	P5
202	Filho & Kovaleva ²⁰²	B	2015	2005-2009, 2013	L & F		Estonia, Germany, Latvia, Lithuania, Poland, Sweden, Belarus	TFLW

Note: (1) Type of publication: J = Journal article, RT = Reports, T = Thesis, CP = Conference Paper, B = Book Chapters.

(2) Method for estimation: W = Weighing, G = Garbage collection, S = Surveys, D = Diaries, R = Records, O = Observation, L = Use of literature data, P = Use of proxy data, F = Food balance, M = Modeling.

(3) Life cycle stage: P1 = Agricultural production and harvesting, P2 = Postharvest handling and storage, P3 = Manufacturing, P4 = Distribution, P5 = Retailing, P6 = Consumption (including P6a = household, P6b = out of home), TPH = Total postharvest, TFLW = Total food losses and waste.

Table S2 Grouping of countries, based on the FAO definition ³⁰

Medium/High-income countries			
Armenia	Estonia	Luxembourg	Slovenia
Australia	Finland	Malta	South Korea
Austria	France	Netherlands	Spain
Belarus	Germany	New Zealand	Sweden
Belgium	Greece	Norway	Switzerland
Bulgaria	Hungary	Poland	UK
Canada	Ireland	Portugal	Ukraine
China	Italy	Romania	USA
Cyprus	Japan	Russia	
Czech Republic	Latvia	Singapore	
Denmark	Lithuania	Slovakia	
Low-income countries			
Angola	Egypt	Malaysia	Swaziland
Argentina	Ethiopia	Mexico	Tanzania
Bangladesh	Ghana	Myanmar	Thailand
Benin	India	Nepal	Togo
Bolivia	Indonesia	Nigeria	Turkey
Brazil	Iran	Pakistan	Uganda
Cambodia	Jamaica	Peru	Venezuela
Cameroon	Kenya	Philippines	Vietnam
Chile	Laos	Saudi Arabia	Zambia
Columbia	Madagascar	South Africa	Zimbabwe
Costa Rica	Malawi	Sri Lanka	

Table S3 Total FLW and per capita FLW data of agricultural production and harvesting used in Figure 6 in the main text of the paper

Food type	Reference	Country coverage	Year of estimation	Sub-food type	Quantity (MT)	Per capita waste (kg)
Cereals & Cereal products	Segrè et al. ⁶⁴	Italy	2010	Cereals	0.228	3.84
	Oelofse & Nahman ¹²¹	South Africa	2009	Cereals	0.789	15.77
		South Africa	2007	Cereals	0.571	11.73
	Nahman & de Lange ¹³⁴	South Africa	2009	Cereals	0.788	15.74
	Liu ⁶⁹	China	2010	Cereals	21.600	16.15
		China	1998	Cereals	26.015	20.95
China		2003	Cereals	19.400	15.06	
Fruits & Vegetables	Morgan ¹³	Australia	2006	Bananas	0.200	9.66
	Barilla Center for Food & Nutrition (BCFN) ³⁸	Italy	2009	Fruit	1.108	18.76
		Italy	2009	Citrus Fruits	0.754	12.76
		Italy	2009	Grapes	2.752	46.57
		Italy	2009	Open field vegetables	3.520	59.56
		Italy	2009	Greenhouse vegetables	1.968	33.31
		Italy	2010	Fruit	0.184	3.11
		Italy	2010	Citrus	0.381	6.43
		Italy	2010	Grapes	0.057	0.97
		Italy	2010	Full field vegetables	0.804	13.57
	Italy	2010	Greenhouse vegetables	0.481	8.11	
	Oelofse & Nahman ¹²¹	South Africa	2009	Fruit	0.823	16.44
		South Africa	2007	Vegetables	0.811	16.67
Nahman & de Lange ¹³⁴	South Africa	2009	Fruits & Vegetables	0.846	16.90	
Meat & Fish	Harrington et al. ⁹⁴	USA	2002	Fish	1.058	3.68
	Oelofse & Nahman ¹²¹	South Africa	2009	Meat	0.013	0.26
		South Africa	2009	Fish & Seafood	0.187	3.74
		South Africa	2007	Meat	0.321	6.59
		South Africa	2007	Fish & Seafood	0.038	0.79
	Nahman & de Lange ¹³⁴	South Africa	2009	Meat	0.382	7.63
		South Africa	2009	Fish & seafood	0.038	0.76
Davies et	Argentina	1997	Hake	0.149	4.16	

Food type	Reference	Country coverage	Year of estimation	Sub-food type	Quantity (MT)	Per capita waste (kg)
	al. ¹⁰⁵	Argentina	2003	Hake & shrimp	0.515	13.45
		Australia	2004	Trawl fisherie	0.113	5.61
		Bangladesh	2003	Shrimp, finfish, bag-net fisherie	1.207	8.71
		Brazil	2003	Shrimp	0.487	2.65
		Canada	2003	Marine	0.081	2.56
		Chile	2003	Marine	0.615	39.10
		China	1999	Marine	5.000	3.99
		India	2000	Marine	2.250	2.14
		Indonesia	2003	Marine	4.392	19.94
		Japan	1997	Marine	0.900	7.14
		Malaysia	2004	Marine	0.718	28.36
		Mexico	2003	Shrimp	0.570	5.33
		New Zealand	2003	Marine	0.122	30.36
		Pakistan	2003	Marine	0.192	1.30
		Russia	1999	Marine	0.957	6.50
		Sri Lanka	2003	Shrimp	0.066	3.44
		Thailand	2004	Trawl & push-net catch	1.644	25.14
		USA	2002	Marine	1.060	3.69
		Venezuela	2003	Marine	0.120	4.64
Vietnam	2001	Marine	2.080	26.46		
Dairy products & Eggs	FAO ⁶⁰	Kenya	2012	Milk	0.571	13.43
	(Oelofse & Nahman ¹²¹	South Africa	2007	Milk	0.184	3.78
	Nahman & de Lange ¹³⁴	South Africa	2009	Milk	0.186	3.72

Table S4 Total FLW and per capita FLW data of postharvest handling and storage used in Figure 7 in the main text of the paper

Food type	Reference	Country coverage	Year of estimation	Sub-food type	Quantity (MT)	Per capita waste(kg)
Cereals & Cereal products	FAO ⁶⁰	Philippines	2012	Rice	1.803	18.78
	Oelofse & Nahman ¹²¹	South Africa	2009	Cereals	0.989	19.76
		South Africa	2007	Cereals	0.715	14.69
	Nahman & de Lange ¹³⁴	South Africa	2009	Cereals	0.988	19.74
	Liu ⁶⁹	China	2011	Cereals	18.750	13.95
		China	1998	Cereals	7.095	5.71
		China	1998	Cereals	7.095	5.71
		China	1998	Cereals	23.650	19.04
China		2003	Cereals	24.000	18.63	
Fruits & Vegetables	Oelofse & Nahman ¹²¹	South Africa	2009	Fruits & Vegetables	0.667	13.33
		South Africa	2007	Fruits & Vegetables	0.657	13.50
	Nahman & de Lange ¹³⁴	South Africa	2009	Fruits & Vegetables	0.685	13.68
	Rajabi et al. ¹⁶⁹	Iran	2013	Grape	0.028	0.37
	Liu ⁶⁹	China	2011	Vegetables	14.000	10.42
Meat & Fish	Oelofse & Nahman ¹²¹	South Africa	2009	Meat	0.009	0.18
		South Africa	2009	Fish & Seafood	0.013	0.26
		South Africa	2007	Meat	0.013	0.27
		South Africa	2007	Fish & Seafood	0.038	0.78
	Nahman & de Lange ¹³⁴	South Africa	2009	Meat	0.015	0.30
		South Africa	2009	Fish & seafood	0.038	0.76
Dairy products & Eggs	Oelofse & Nahman ¹²¹	South Africa	2009	Milk	0.032	0.65
		South Africa	2007	Milk	0.317	6.52

Table S5 Total FLW and per capita FLW data of manufacturing used in Figure 7 in the main text of the paper

Food type	Reference	Country coverage	Year of estimation	Sub-food type	Quantity (MT)	Per capita waste(kg)
Cereals & Cereal products	Barilla Center for Food & Nutrition (BCFN) ³⁸	Italy	2010	Grain & starch products	0.246	4.15
	Oelofse & Nahman ¹²¹	South Africa	2009	Cereals	0.398	7.95
		South Africa	2007	Cereals	0.288	5.92
	Nahman & de Lange ¹³⁴	South Africa	2009	Cereals	0.398	7.95
	Katajajuuri et al. ¹⁴⁶	Finland	2012	Bakery products	0.023	4.25
	Liu ⁶⁹	China	2012	Cereals	14.190	10.51
China		2012	Cereals	4.500	3.33	
Fruits & Vegetables	Garnett ⁶	UK	2001	Fruit & vegetable	0.624	10.55
	Barilla Center for Food & Nutrition (BCFN) ³⁸	Italy	2010	Fruits & Vegetables	0.280	4.72
		Italy	2010	Vegetables	0.073	1.24
	Oelofse & Nahman ¹²¹	South Africa	2009	Fruits & Vegetables	1.685	33.66
		South Africa	2007	Fruits & Vegetables	1.660	34.12
	Nahman & de Lange ¹³⁴	South Africa	2009	Fruits & Vegetables	1.733	34.62
	Halloran et al. ¹⁵⁸	Denmark	2012	Fruits & Vegetables	0.030	5.37
Meat & Fish	Barilla Center for Food & Nutrition (BCFN) ³⁸	Italy	2010	Meat & meat products	0.150	2.54
		Italy	2010	Fish & fish products	0.008	0.14
	Oelofse & Nahman ¹²¹	South Africa	2009	Meat	0.067	1.34
		South Africa	2009	Fish & Seafood	0.018	0.36
		South Africa	2007	Meat	0.090	1.85

Food type	Reference	Country coverage	Year of estimation	Sub-food type	Quantity (MT)	Per capita waste(kg)
		South Africa	2007	Fish & Seafood	0.054	1.11
	Nahman & de Lange ¹³⁴	South Africa	2009	Meat	0.108	2.16
		South Africa	2009	Fish & seafood	0.054	1.08
	Katajajuuri et al. ¹⁴⁶	Finland	2012	Meat products	0.013	2.31
	(Rossaint & Kreyenschmidt ¹⁵³	Germany	2012	Poultry	0.000	0.00
	Halloran et al. ¹⁵⁸	Denmark	2012	Meat & meat products	0.034	6.08
Dairy products & Eggs	Barilla Center for Food & Nutrition (BCFN) ³⁸	Italy	2010	Dairy products & ice cream	0.405	6.82
	Oelofse & Nahman ¹²¹	South Africa	2009	Milk	0.003	0.06
		South Africa	2007	Milk	0.003	0.06
	Nahman & de Lange ¹³⁴	South Africa	2009	Milk	0.003	0.06
Katajajuuri et al. ¹⁴⁶	Finland	2012	Dairy	0.038	7.02	

Table S6 Total FLW and per capita FLW data of distribution used in Figure 7 in the main text of the paper

Food type	Reference	Country coverage	Year of estimation	Sub-food type	Quantity (MT)	Per capita waste (kg)
Cereals & Cereal products	Oelofse & Nahman ¹²¹	South Africa	2009	Cereals	0.22	4.40
		South Africa	2007	Cereals	0.159	3.27
	Venkat ¹²³	USA	2009	Cereals	0	0.00
	Nahman & de Lange ¹³⁴	South Africa	2009	Cereals	0.289	5.77
	Liu ⁶⁹	China	1998	Cereals	7.095	5.71
		China	2003	Cereals	3.5	2.72
Fruits & Vegetables	Oelofse & Nahman ¹²¹	South Africa	2009	Fruits & Vegetables	0.859	17.16
		South Africa	2007	Fruits & Vegetables	0.847	17.41
	Venkat ¹²³	USA	2009	Vegetables	1.95	6.36
		USA	2009	Fruits & Juices	0.9	2.93
	Nahman & de Lange ¹³⁴	South Africa	2009	Fruits & Vegetables	0.986	19.70
Meat & Fish	Oelofse & Nahman ¹²¹	South Africa	2009	Meat	0.089	1.78
		South Africa	2009	Fish & Seafood	0.027	0.54
		South Africa	2007	Meat	0.12	2.47
		South Africa	2007	Fish & Seafood	0.081	1.66
	Venkat ¹²³	USA	2009	Beef	0	0.00
		USA	2009	Pork	0	0.00
		USA	2009	Chicken	0	0.00
		USA	2009	Other Meats	0	0.00
		USA	2009	Fish & Shellfish	0	0.00
		USA	2009	Butter, Fats & Oils	0	0.00
	Nahman & de Lange ¹³⁴	South Africa	2009	Meat	0.196	3.92
		South Africa	2009	Fish & seafood	0.085	1.70
		Rossaint & Kreyenschmidt ¹⁵³	Germany	2012	Poultry	0.00004912
	Dairy products	Oelofse & Nahman ¹²¹	South Africa	2009	Milk	0.261
South Africa			2007	Milk	0.256	5.26

Food type	Reference	Country coverage	Year of estimation	Sub-food type	Quantity (MT)	Per capita waste (kg)
& Eggs	Venkat ¹²³	USA	2009	Cheese	0	0.00
		USA	2009	Milk & Yogurt	0	0.00
		USA	2009	Other Dairy	0	0.00
		USA	2009	Eggs	0.07	0.23

Table S7 Total FLW and per capita FLW data of retailing used in Figure 7 in the main text of the paper

Food type	Reference	Country coverage	Year of estimation	Sub-food type	Quantity (MT)	Per capita waste (kg)
Cereals & Cereal products	Buzby, Wells & Hyman ⁵⁶	USA	2010	Cereals products		10.4
	Davies & Konisky ²	USA	1995	Cereals Products	0.41	1.55
	Jones ⁵	USA	2003	Cereals	0.228	0.79
		USA	2003	Cereals	0.127	0.44
	Stenmarck et al. ³³	Norway	2009	Bakery products	0.004	0.77
	Buzby et al. ¹⁰⁹	USA	2008	Cereals products	3.25	10.70
	Hodges et al. ¹¹¹	USA	2008	Cereals products	3.253	10.70
	Buzby & Hyman ¹¹⁷	USA	2008	Cereals products		10.7
Venkat ¹²³	USA	2009	Cereals	3.24	10.56	
Fruits & Vegetables	Buzby, Wells & Hyman ⁵⁶	USA	2010	Fruit		8.6
		USA	2010	Fresh Fruit		6.4
		USA	2010	Processed Fruit		2.3
		USA	2010	Vegetables		10.4
		USA	2010	Fresh vegetable		7.7
		USA	2010	Processed vegetable		2.7
	Davies & Konisky ²	USA	1995	Fruit	0.32	1.20
		USA	1995	Vegetables	0.45	1.70
	Jones ⁵	USA	2003	Fruit	0.015	0.05
		USA	2003	Vegetables	0.401	1.38
		USA	2003	Fruit	0.438	1.51
		USA	2003	Vegetables	0.758	2.61
	Garnett ⁶	UK	2004	Fruits & Vegetables	0.022	0.36
	Stenmarck et al. ³³	Norway	2009	Fresh vegetables	0.004	0.83
		Norway	2009	Fruits and berries	0.004	0.72
	Buzby et al.	USA	2008	Fruit	2.60	8.57

Food type	Reference	Country coverage	Year of estimation	Sub-food type	Quantity (MT)	Per capita waste (kg)
	¹⁰⁹	USA	2008	Fresh vegetable	1.92	6.31
		USA	2008	Processed Fruit	0.69	2.26
		USA	2008	Vegetables	3.12	10.27
		USA	2008	Fresh vegetable	2.31	7.61
		USA	2008	Processed vegetable	0.81	2.66
	Hodges et al. ¹¹¹	USA	2008	Fruit	2.605	8.57
		USA	2008	Fresh vegetable	1.918	6.31
		USA	2008	Processed Fruit	0.687	2.26
		USA	2008	Vegetables	3.123	10.27
		USA	2008	Fresh vegetable	2.314	7.61
		USA	2008	Processed vegetable	0.809	2.66
	Buzby & Hyman ¹¹⁷	USA	2008	Fruit		8.6
		USA	2008	Fresh vegetable		6.3
		USA	2008	Processed Fruit		2.3
		USA	2008	Vegetables		10.3
		USA	2008	Fresh vegetable		7.6
		USA	2008	Processed vegetable		2.7
	Venkat ¹²³	USA	2009	Vegetables	2.96	9.65
		USA	2009	Fruits & Juices	2.65	8.64
	Mena et al. ¹⁴⁹	UK	2012	Lettuce		2
		UK	2012	Bananas		2
Willersinn et al. ¹⁷⁷	USA	2013	Fresh vegetables		2	
	Switzerland	2013	Fresh vegetables		9	
Gustavsson ¹⁸²	Sweden	2008	Apples		1.1	
	Sweden	2008	Broccoli		6.3	
	Sweden	2008	Cabbages		0.7	

Food type	Reference	Country coverage	Year of estimation	Sub-food type	Quantity (MT)	Per capita waste (kg)
		Sweden	2008	Cauliflowers		4.7
		Sweden	2008	Celery root		4.6
		Sweden	2008	Cucumbers		0.9
		Sweden	2008	Iceberg lettuce		1.9
		Sweden	2008	Kiwis		3.8
		Sweden	2008	Leeks		2.1
		Sweden	2008	Onions		0.4
		Sweden	2008	Pears		2.6
		Sweden	2008	Rutabagas		4.2
		Sweden	2008	Strawberries		4.8
		Sweden	2008	Tomatoes		2.2
		Sweden	2008	Apples		3.4
		Sweden	2008	Kiwis		2.8
		Sweden	2008	Onions		0.9
	Sweden	2008	Tomatoes		3.8	
		Eriksson ¹⁸⁶	Sweden	2010	Fresh fruit & vegetables	
Sweden			2011	Fresh fruit & vegetables		5.5
Meat & Fish	Buzby, Wells & Hyman ⁵⁶	USA	2010	Meat, Poultry, Fish & Seafood		4.1
		USA	2010	Meat		2.3
		USA	2010	Poultry		1.4
		USA	2010	Fish & seafood		0.5
	Davies & Konisky ²	USA	1995	Added fats and oils	0.23	0.88
		USA	1995	Meat, poultry & fish	0.09	0.35
	Jones ⁵	USA	2003	Fats & Oils	0.192	0.66
		USA	2003	Meat	0.013	0.04
	Buzby et al. ¹⁰⁹	USA	2008	Meat	1.24	4.06
		USA	2008	Meat, poultry & fish	0.67	2.19
		USA	2008	Meat	0.39	1.28
	Hodges et al. ¹¹¹	USA	2008	Poultry	0.18	0.59
		USA	2008	Fish and seafood	1.236	4.06

Food type	Reference	Country coverage	Year of estimation	Sub-food type	Quantity (MT)	Per capita waste (kg)
		USA	2008	Meat, poultry & fish	0.667	2.19
		USA	2008	Meat	0.388	1.28
		USA	2008	Poultry	0.18	0.59
	Buzby & Hyman ¹¹⁷	USA	2008	Fish and seafood		4.1
		USA	2008	Meat, poultry & fish		2.2
		USA	2008	Meat		1.3
		USA	2008	Poultry		0.6
	Venkat ¹²³	USA	2009	Fish and seafood	0.35	1.14
		USA	2009	Beef	0.28	0.91
		USA	2009	Pork	0.31	1.01
		USA	2009	Chicken	0.08	0.26
		USA	2009	Other Meats	0.17	0.55
	Mena et al. ¹⁴⁹	UK	2012	Deli, conventional & organic		3.9
		UK	2012	Meat, conventional & organic		3.8
		UK	2012	Beef		3.7
		UK	2012	Pig/Pork		3.7
	Rossaint & Kreyenschmidt ¹⁵³	Germany	2012	Lamb		3.5
	Eriksson ¹⁸⁶	Sweden	2010	Poultry		1.83
		Sweden	2010	Poultry		1.53
		Sweden	2011	Deli		1.35
Sweden		2011	Meat		1.22	
Dairy products & Eggs	Buzby, Wells & Hyman ⁵⁶	USA	2010	Dairy products		13.6
		USA	2010	Fluid milk		9.5
		USA	2010	Other dairy products		4.1
		USA	2010	Eggs		0.9
	Davies & Konisky ²	USA	1995	Dairy	0.69	2.60
		USA	1995	Eggs	0.07	0.27
	Buzby et al. ¹⁰⁹	USA	2008	Dairy	4.25	13.96
		USA	2008	Dairy	2.97	9.76

Food type	Reference	Country coverage	Year of estimation	Sub-food type	Quantity (MT)	Per capita waste (kg)
		USA	2008	Dairy	1.28	4.20
		USA	2008	Eggs	0.40	1.30
	Hodges et al. ¹¹¹	USA	2008	Dairy	4.246	13.96
		USA	2008	Dairy	2.967	9.76
		USA	2008	Dairy	1.279	4.21
		USA	2008	Eggs	0.396	1.30
		USA	2008	Eggs		1.30
	Buzby & Hyman ¹¹⁷	USA	2008	Dairy		14
		USA	2008	Dairy		9.8
		USA	2008	Dairy		4.2
		USA	2008	Eggs		1.3
	Venkat ¹²³	USA	2009	Cheese	0.33	1.08
		USA	2009	Milk & Yogurt	3.18	10.37
		USA	2009	Other Dairy	0.62	2.02
		USA	2009	Eggs	0.4	1.30
	Eriksson ¹⁸⁶	Sweden	2010	Cheese		0.594
		Sweden	2010	Dairy		0.347
		Sweden	2011	Cheese		0.528
		Sweden	2011	Dairy		0.328

Table S8 Total FLW and per capita FLW data of retailing in the U.S. used in Figure S5 in the main text of the paper

Food type	Reference	Country coverage	Year of estimation	Sub-food type	Quantity (MT)	Per capita waste (kg)
Cereals & Cereal products	Buzby, Wells & Hyman ⁵⁶	USA	2010	Cereal products		10.4
	Davies & Konisky ²	USA	1995	Cereal Products	0.41	1.55
	Jones ⁵	USA	2003	Cereal	0.228	0.79
		USA	2003	Cereal	0.127	0.44
	Buzby et al. ¹⁰⁹	USA	2008	Cereal products	3.25	10.70
	Hodges et al. ¹¹¹	USA	2008	Cereal products	3.253	10.70
	Buzby & Hyman ¹¹⁷	USA	2008	Cereal products		10.7
Venkat ¹²³	USA	2009	Cereal	3.24	10.56	
Fruits	Buzby, Wells & Hyman ⁵⁶	USA	2010	Fruit		8.6
		USA	2010	Fresh Fruit		6.4
		USA	2010	Processed Fruit		2.3
	Davies & Konisky ²	USA	1995	Fruit	0.32	1.20
	Jones ⁵	USA	2003	Fruit	0.015	0.05
		USA	2003	Fruit	0.438	1.51
	Buzby et al. ¹⁰⁹	USA	2008	Fruit	2.60	8.57
		USA	2008	Fresh Fruit	1.92	6.31
		USA	2008	Processed Fruit	0.69	2.26
	Hodges et al. ¹¹¹	USA	2008	Fruit	2.605	8.57
		USA	2008	Fresh Fruit	1.918	6.31
		USA	2008	Processed Fruit	0.687	2.26
	Buzby & Hyman ¹¹⁷	USA	2008	Fruit		8.6
		USA	2008	Fresh Fruit		6.3
		USA	2008	Processed Fruit		2.3
	Venkat ¹²³	USA	2009	Fruits & Juices	2.65	8.64
Vegetables	Buzby, Wells & Hyman ⁵⁶	USA	2010	Vegetables		10.4
		USA	2010	Fresh vegetable		7.7

Food type	Reference	Country coverage	Year of estimation	Sub-food type	Quantity (MT)	Per capita waste (kg)
		USA	2010	Processed vegetable		2.7
	Davies & Konisky ²	USA	1995	Vegetables	0.45	1.70
	Jones ⁵	USA	2003	Vegetables	0.401	1.38
		USA	2003	Vegetables	0.758	2.61
	Buzby et al. ¹⁰⁹	USA	2008	Vegetables	3.12	10.27
		USA	2008	Fresh vegetable	2.31	7.61
		USA	2008	Processed vegetable	0.81	2.66
	Hodges et al. ¹¹¹	USA	2008	Vegetables	3.123	10.27
		USA	2008	Fresh vegetable	2.314	7.61
		USA	2008	Processed vegetable	0.809	2.66
	Buzby & Hyman ¹¹⁷	USA	2008	Vegetables		10.3
		USA	2008	Fresh vegetable		7.6
		USA	2008	Processed vegetable		2.7
	Venkat ¹²³	USA	2009	Vegetables	2.96	9.65
	Willersinn et al ¹⁷⁷	USA	2013	Fresh vegetables		2
Meat & Fish	Buzby, Wells & Hyman ⁵⁶	USA	2010	Meat, Poultry, Fish & seafood		4.1
		USA	2010	Meat		2.3
		USA	2010	Poultry		1.4
		USA	2010	Fish & seafood		0.5
		USA	2010	Added fats and oils		8.2
	Davies & Konisky ²	USA	1995	Meat, poultry & fish	0.23	0.88
		USA	1995	Fats & Oils	0.09	0.35
	Jones ⁵	USA	2003	Meat	0.192	0.66
		USA	2003	Meat	0.013	0.04

Food type	Reference	Country coverage	Year of estimation	Sub-food type	Quantity (MT)	Per capita waste (kg)
	Buzby et al. ¹⁰⁹	USA	2008	Meat, poultry, & fish	1.24	4.06
		USA	2008	Meat	0.67	2.19
		USA	2008	Poultry	0.39	1.28
		USA	2008	Fish and seafood	0.18	0.59
	Hodges et al. ¹¹¹	USA	2008	Meat, poultry & fish	1.236	4.06
		USA	2008	Meat	0.667	2.19
		USA	2008	Poultry	0.388	1.28
		USA	2008	Fish and seafood	0.18	0.59
	Buzby & Hyman ¹¹⁷	USA	2008	Meat, poultry, & fish		4.1
		USA	2008	Meat		2.2
		USA	2008	Poultry		1.3
		USA	2008	Fish and seafood		0.6
	Venkat ¹²³	USA	2009	Beef	0.35	1.14
		USA	2009	Pork	0.28	0.91
		USA	2009	Chicken	0.31	1.01
		USA	2009	Other Meats	0.08	0.26
		USA	2009	Fish & Shellfish	0.17	0.55
		USA	2009	Butter, Fats & Oils	2.08	6.78
	Dairy products & Eggs	Buzby, Wells & Hyman ⁵⁶	USA	2010	Dairy products	
USA			2010	Fluid milk		9.5
USA			2010	Other dairy products		4.1
USA			2010	Eggs		0.9
Davies & Konisky ²		USA	1995	Dairy	0.69	2.60
		USA	1995	Eggs	0.07	0.27
Buzby et al.		USA	2008	Dairy	4.25	13.96

Food type	Reference	Country coverage	Year of estimation	Sub-food type	Quantity (MT)	Per capita waste (kg)
	¹⁰⁹	USA	2008	Dairy	2.97	9.76
		USA	2008	Dairy	1.28	4.20
		USA	2008	Eggs	0.40	1.30
	Hodges et al. ¹¹¹	USA	2008	Dairy	4.246	13.96
		USA	2008	Dairy	2.967	9.76
		USA	2008	Dairy	1.279	4.21
		USA	2008	Eggs	0.396	1.30
	Buzby & Hyman ¹¹⁷	USA	2008	Dairy		14
		USA	2008	Dairy		9.8
		USA	2008	Dairy		4.2
		USA	2008	Eggs		1.3
	Venkat ¹²³	USA	2009	Cheese	0.33	1.08
		USA	2009	Milk & Yogurt	3.18	10.37
		USA	2009	Other Dairy	0.62	2.02
		USA	2009	Eggs	0.4	1.30

Table S9 Total food waste and per capita waste data of household used in Figure 8(a) in the main text of the paper

No.	Reference	Country coverage	Year of estimation	Quantity (MT)	Per capita waste (kg)
1	Lee et al. ¹⁵	UK	2007	8.30	135.4
		UK	2007	6.70	109.3
2	WRAP ¹¹	UK	2007	8.30	135.4
		UK	2007	7.00	114.2
3	WRAP ²⁵	UK	2010	4.62	73.6
4	WRAP ⁵⁷	UK	2012	6.59	103.5
		UK	2012	5.82	91.4
		UK	2007	7.99	130.3
5	Monier et al. ²⁰	Austria	2006	0.78	95
		Belgium	2006	0.93	89
		Bulgaria	2006	0.29	37
		Cyprus	2006	0.05	62
		Czech Republic	2006	0.25	25
		Denmark	2006	0.49	91
		Estonia	2006	0.08	61
		Finland	2006	0.21	41
		France	2006	6.32	100
		Germany	2006	7.68	93
		Greece	2006	0.41	37
		Hungary	2006	0.39	39
		Ireland	2006	0.29	69
		Italy	2006	2.71	46
		Latvia	2006	0.08	34
		Lithuania	2006	0.11	33
		Luxembourg	2006	0.06	133
		Malta	2006	0.02	55
		Netherlands	2006	1.84	113
		Poland	2006	2.05	54
		Portugal	2006	0.39	36
		Romania	2006	0.70	32
Slovakia	2006	0.14	25		
Slovenia	2006	0.07	36		
Spain	2006	2.14	49		
Sweden	2006	0.91	100		
		UK	2006	8.30	137
6	European Food SCP Round Table Working	Austria	2009		94
		Belgium	2009		88

No.	Reference	Country coverage	Year of estimation	Quantity (MT)	Per capita waste (kg)
	Group 3 ²⁷	Bulgaria	2009		38
		Cyprus	2009		61
		Czech Republic	2009		24
		Denmark	2009		90
		Estonia	2009		61
		Finland	2009		41
		France	2009		99
		Germany	2009		93
		Greece	2009		37
		Hungary	2009		39
		Ireland	2009		66
		Italy	2009		45
		Latvia	2009		35
		Lithuania	2009		33
		Luxembourg	2009		129
		Netherlands	2009		112
		Poland	2009		54
		Portugal	2009		36
		Romania	2009		32
		Slovakia	2009		25
Slovenia	2009		36		
Spain	2009		47		
Sweden	2009		99		
UK	2009		136		
7	Barilla Center for Food & Nutrition (BCFN) ³⁸	Italy	2010	6.60	108
		France	2010	6.30	99
		Sweden	2010	0.67	72
		Germany	2010	6.70	82
		USA	2010	33.70	109
8	Kranert et al. ⁴¹	Germany	2010	6.67	81.6
9	Verghese et al. ⁵¹	Australia	2011	2.70	120.9
10	FAO ⁶⁰	UK	2012	5.42	70
		Australia	2012	3.18	139.7
11	Parry et al. ⁷²	UK	2013	7.00	109.2
		UK	2013	7.00	109.2
		UK	2013	4.20	65.5
12	Hogg et al. ⁸	UK	2004	5.38	89.6
13	Caswell ⁹⁸	UK	2006	6.70	110.1
14	Oelofse & Nahman ¹²¹	South Africa	2010	0.37	7.3
		South Africa	2007	0.35	7.3

No.	Reference	Country coverage	Year of estimation	Quantity (MT)	Per capita waste (kg)
15	Venkat ¹²³	USA	2009	33.73	110.0
16	Gjerris & Gaiani ¹²⁷	Finland	2011		146
		Finland	2010		23
		Norway	2011	0.26	51.5
		Norway	2011		51
		Sweden	2011	0.67	71.3
17	Nahman & de Lange ¹³⁴	South Africa	2011	0.50	9.7
18	Blanke ¹⁴⁰	Germany	2011	6.67	81.5
19	Katajajuuri et al. ¹⁴⁶	Finland	2010	0.13	24.2
20	Reynolds et al. ¹⁵²	Australia	2006	4.40	212.6
		Australia	2006	1.20	58.0
21	Blanke ¹⁶⁰	Germany	2013	6.67	81.2
22	Jürissen et al. ¹⁶⁵	Italy	2013	2.70	44.8
		Germany	2013	7.70	93.8
		Austria	2013		7.956
		Finland	2013		22.984
		Sweden	2013		28.496
		Netherlands	2013		47.008
		UK	2013		10.348
		UK	2013		69.992
23	Verghese et al. ¹⁷⁶	Australia	2013	2.70	116.8
24	Marra ¹⁸⁸	Japan	2010	3.00	23.4
25	Eriksson ¹⁸⁶	Sweden	2011	0.68	72
26	Blomgren & Bylund ¹⁸⁹	Sweden	2010	0.67	71.9
27	Filho & Kovaleva ²⁰²	Estonia	2013	0.08	62.4
		Germany	2013	7.68	93.5
		Latvia	2013	0.08	39.2
		Lithuania	2013	0.11	37.6
		Poland	2013	2.05	53.9
		Sweden	2013	0.91	94.3
28	Eriksson ¹⁹²	Sweden	2012	0.77	81
29	Silvennoinen ⁴⁵	Finland	2010	0.14	26
30	Halloran et al. ¹⁵⁸	Denmark	2012	0.24	42.4
31	Holding et al. ²³	UK	2008	6.70	108.4
		UK	2008	4.30	69.6
32	Bond et al. ⁵⁵	UK	2011	7.60	120.1

Table S10 Total food waste and per capita waste data out of home used in Figure 8(b) in the main text of the paper

No.	Reference	Country coverage	Year of estimation	Quantity (MT)	Per capita waste (kg)
Food service	Lee et al. ¹⁵	UK	2007	3.000	48.92
	Kranert et al. ⁴¹	Germany	2010	0.926	11.32
	Marthinsen et al. ⁴²	Denmark	2012	0.080	14.42
		Finland	2012	0.106	19.76
		Norway	2010	0.051	33.24
		Slovenia	2010	0.011	6
		Austria	2009	0.104	13
		France	2004	1.080	17
		Estonia	2008	0.025	18
		Germany	2009	2.000	24
		Sweden	2010	0.299	33
		UK	2008	3.000	50
		Denmark	2010	0.140	25.24
		Finland	2010	0.140	26.10
		Norway	2010	0.140	28.63
		Sweden	2010	0.260	27.72
		Denmark	2010	0.094	16.94
	Finland	2010	0.094	17.53	
	Norway	2010	0.094	19.23	
	Sweden	2010	0.174	18.55	
Verghese et al. ⁵¹	Australia	2012	0.661	29.08	
Parry et al. ⁷²	UK	2013	0.900	14.03	
Verghese et al. ¹⁷⁶	Australia	2013	0.661	28.59	
WRAP ³⁵	UK	2009	0.600	9.63	
Silvennoinen ⁴⁵	Finland	2010	0.080	15	
Eriksson ¹⁹²	Sweden	2012	0.058	6.00	
Canteen	Silvennoinen ⁴⁵	Finland	2010	0.015	2.80
	Halloran et al. ¹⁵⁸	Denmark	2012	0.033	5.93
	Marthinsen et al. ⁴²	Norway	2012	0.006	1.18
Restaurant	Jones ⁵	USA	2003	8.162	28.13
	Barilla Center for Food & Nutrition (BCFN) ³⁸	Sweden	2010	0.099	10.56
	Parry et al. ⁷²	Japan	2000	3.400	26.80
		Japan	2007	3.100	24.22
		Japan	2008	3.000	23.43
		Japan	2009	2.700	21.09
		Japan	2010	2.300	17.96
Japan	2011	1.900	14.86		

No.	Reference	Country coverage	Year of estimation	Quantity (MT)	Per capita waste (kg)
		Japan	2012	1.920	15.05
	Gao et al. ¹²⁶	China	2008	6.000	4.53
	Gjerris & Gaiani ¹²⁷	Sweden	2011	0.099	10.48
	Blanke ¹⁴⁰	Germany	2012	1.900	23.62
	Katajajuuri et al. ¹⁴⁶	Finland	2012	0.019	3.51
		Finland	2012	0.080	14.78
	Blanke ¹⁶⁰	Germany	2013	1.900	23.13
	Eriksson ¹⁸⁶	Sweden	2010	0.125	13.33
	Blomgren & Bylund ¹⁸⁹	Sweden	2010	0.099	10.56
	Eriksson ¹⁹²	Sweden	2012	0.142	14.92
		Finland	2013	0.058	6
	Silvennoinen ⁴⁵	Finland	2010	0.018	3.36
	Marthinsen et al. ⁴²	Norway	2012	0.104	20.62
		Sweden	2012	0.099	10.40
Fast food	Jones ⁵	USA	2003	14.083	48.54
	Katajajuuri et al. ¹⁴⁶	Finland	2012	0.004	0.74
	(Silvennoinen ⁴⁵)	Finland	2010	0.004	0.65
	Marthinsen et al. ⁴²	Norway	2012	0.011	2.15
School	(Barilla Center for Food & Nutrition (BCFN) ³⁸)	Sweden	2010	0.026	2.77
	Katajajuuri et al. ¹⁴⁶	Finland	2012	0.019	3.51
	Blomgren & Bylund ¹⁸⁹	Sweden	2010	0.026	2.77
	Silvennoinen ⁴⁵	Finland	2010	0.019	3.54
	Marthinsen et al. ⁴²	Sweden	2012	0.026	2.73
Hospital	Katajajuuri et al. ¹⁴⁶	Finland	2012	0.018	3.32
	Dias-Ferreira et al. ¹⁶²	Portugal	2014	0.009	0.84
	Silvennoinen ⁴⁵	Finland	2010	0.018	3.36
Extended Care Facility	Silvennoinen ⁴⁵	Finland	2010	0.002	0.28
Others	Verghese et al. ⁵¹	Australia	2012	0.068	2.99
	Parry et al. ⁷²	UK	2013	3.000	46.78
	Verghese et al. ¹⁷⁶	Australia	2013	0.680	29.42
	Silvennoinen ⁴⁵	Finland	2010	0.055	10.25

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