

Supplementary Materials: Environmental Implications of Dynamic Policies on Food Consumption and Waste Handling in the European Union

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Table S1. Representative food products and amounts from FAO stat for reference year 2010 [1].

Category	Representative Food Product	2010 (kg Total)
Meat	Bovine Meat	2.59×10^{11}
	Poultry Meat	7.98×10^{10}
	Pork	1.86×10^{11}
Cereals and Grains	Wheat and products	3.94×10^{10}
	Barley and products	4.28×10^9
	Maize and products	4.73×10^9
Starchy Crops	Potatoes and products	1.90×10^{10}
Sugars	Sugar beet	2.87×10^{11}
	Sugar (Raw Equivalent)	1.17×10^{10}
Pulses	Beans	3.73×10^8
	Peas	8.17×10^8
Nuts and products		3.38×10^9
Oil Crops	Soyabeans	2.00×10^{10}
	Rape and Mustardseed	2.36×10^{10}
	Olives (including preserved)	7.21×10^9
Vegetable Oils	Sunflowerseed Oil	2.28×10^9
	Rape and Mustard Oil	6.53×10^9
	Soybean Oil	2.27×10^9
	Olive Oil	1.18×10^9
Vegetables	Tomatoes and products	5.73×10^{10}
	Onions	6.47×10^9
Fruits—Excluding Wine	Oranges, Mandarines	1.04×10^{10}
	Apples and products	6.74×10^9
	Grapes and products (excl wine)	1.54×10^{10}
Stimulants	Coffee and products	2.16×10^9
	Cocoa Beans and products	2.17×10^9
Spices	Pepper	1.27×10^8
	Pimento	2.35×10^8
Beverages	Wine	8.13×10^9
	Beer	7.40×10^{10}
Eggs		1.87×10^{10}
Milk—Excluding Butter		1.33×10^{11}
Offals		7.56×10^8
Animal Fats	Butter, Ghee	1.45×10^{10}
	Cream	8.53×10^9
	Fats, Animals, Raw	8.85×10^8
Fish, Seafood	Freshwater Fish	1.21×10^{10}
	Demersal Fish	1.28×10^{10}
	Pelagic Fish	1.13×10^{10}
Aquatic Animals, Others		2.73×10^9
Infant Food		8.60×10^7

Table S2. Waste percentages from different sectors for each food category used in Scenario W0.

Food Category	Avoidable Losses	% Waste from Each Sector		
		Production	Retail	Households
Cereals	100%	15.8%	2.0%	25.0%
Roots and Tubers	100%	38.1%	7.0%	17.0%
Oilseeds and Pulses	100%	15.4%	1.0%	4.0%
Fruit & Veg	100%	25.5%	10.0%	19.0%
Meat	100%	8.6%	4.0%	11.0%
Fish/Seafood	100%	15.3%	9.0%	11.0%
Milk	100%	5.1%	0.50%	7.0%
Beverages, Other	100%	5.1%	0.50%	7.0%

Table S3. Food Waste from different categories and sectors in 2010, 2030 and 2050 in Scenario W1 and W2.

Avoidable Waste		2010		2030		2050	
		Retail	Households	Retail	Households	Retail	Households
Cereals	100%	2.0%	25.0%	0.80%	10.0%	0.30%	3.75%
Roots and Tubers	100%	7.0%	17.0%	2.80%	6.80%	1.05%	2.55%
Oilseeds and Pulses	100%	1.0%	4.0%	0.40%	1.60%	0.15%	0.60%
Fruit & Veg	100%	10.0%	19.0%	4.00%	7.60%	1.50%	2.85%
Meat	100%	4.0%	11.0%	1.60%	4.40%	0.60%	1.65%
Fish/Seafood	100%	9.0%	11.0%	3.60%	4.40%	1.35%	1.65%
Milk	100%	0.5%	7.0%	0.20%	2.80%	0.08%	1.05%
Beverages, Other	100%	0.50%	7.0%	0.20%	2.80%	0.08%	1.05%

Table S4. References for LCI data used for food products.

Category	Food Product	Refs
Meat	Bovine Meat	GWP and Land Use: Tuomisto and Roy, 2012 [2] BW: Mekonnen och Hoekstra 2010 [3]
	Poultry Meat	GWP: Tuomisto and Roy, 2012 [2] Land Use: Audsley <i>et al.</i> 2009 [4] BW: Mekonnen och Hoekstra 2010 [3]
	Pork	GWP and Land Use: Tuomisto and Roy, 2012 [2] BW: Mekonnen och Hoekstra 2010 [3]
Cereals and Grains	Wheat and products	GWP and Land Use: Audsley <i>et al.</i> 2009 [4] BW: Mekonnen och Hoekstra 2010 [5]
	Barley and products	GWP: Ecoinvent [6] Land Use: Ecoinvent [6] BW: Mekonnen och Hoekstra 2010 [5]
	Maize and products	GWP: Noyaa <i>et al.</i> 2015 [7] Land Use: Assumed similar to Wheat BW: Mekonnen och Hoekstra 2010 [5]
Starchy Crops	Potatoes and products	GWP and Land use: Audsley <i>et al.</i> 2009 [4] BW: Mekonnen och Hoekstra 2010 [5]
Sugars	Sugar beet	GWP: Ecoinvent [6] Land Use: Audsley <i>et al.</i> 2009 [4] BW: Mekonnen och Hoekstra 2010 [5]
	Sugar (Raw Equivalent)	GWP: Rööß, 2013 [8] Land Use: Assumed as sugar beet BW: Mekonnen och Hoekstra 2010 [5]
Pulses	Beans	GWP: Ecoinvent [6] Land Use: Audsley <i>et al.</i> 2009 [4] BW: Mekonnen och Hoekstra 2010 [5] (assumed as pulses)
	Peas	GWP: Ecoinvent [6] Land Use: Assumed as beans BW: Mekonnen och Hoekstra 2010 [5]

Table S4. *Cont.*

Category	Food Product	Refs
Nuts and products		GWP: Ecoinvent [6] Land Use: Ecoinvent [6] BW: Mekonnen och Hoekstra 2010 [5]
	Soyabeans	GWP and Land Use: Tuomisto and Roy, 2012 [2] BW: Mekonnen och Hoekstra 2010 [5]
	Rape and Mustardseed	GWP: Ecoinvent [6]. Land Use: Audsley <i>et al.</i> 2009 [4] BW: Mekonnen och Hoekstra 2010 [5]
Oil Crops	Olives (including preserved)	GWP: Salomone and Loppolo, 2012 [9] Land Use: Assumed as beans BW: Mekonnen och Hoekstra 2010 [5]
	Sunflowerseed Oil	GWP: from Biograce Standard Values Land Use: Audsley <i>et al.</i> 2009 [4] (assumed as sunflower seed) BW: Mekonnen och Hoekstra 2010 [5]
	Rape and Mustard Oil	GWP and Land Use: Ecoinvent [6] BW: Mekonnen och Hoekstra 2010 [5]
Vegetable Oils	Soyabean Oil	GWP: Assumed as part of soya beans Land Use: Assumed as soya beans BW: Mekonnen och Hoekstra 2010 [5]
	Olive Oil	GWP: Assumed as olives Land Use: Assumed as olives BW: Mekonnen och Hoekstra 2010 [5]
Vegetables	Tomatoes and products	GWP and Land Use: Audsley <i>et al.</i> 2009 [4] BW: Mekonnen och Hoekstra 2010 [5]
	Onions	GWP and Land Use: Audsley <i>et al.</i> 2009 [4] BW: Mekonnen och Hoekstra 2010 [5]
	Oranges, Mandarines	GWP and Land Use: Audsley <i>et al.</i> 2009 [4] BW: Mekonnen och Hoekstra 2010 [5]
Fruits—Excluding Wine	Apples and products	GWP and Land Use: Audsley <i>et al.</i> 2009 [4] BW: Mekonnen och Hoekstra 2010 [5]
	Grapes and products (excl wine)	GWP and Land Use: Audsley <i>et al.</i> 2009 [4] BW: Mekonnen och Hoekstra 2010 [5]
	Coffee and products	GWP and Land Use: Audsley <i>et al.</i> 2009 [4] BW: Mekonnen och Hoekstra 2010 [5]
Stimulants	Cocoa Beans and products	GWP and Land Use: Audsley <i>et al.</i> 2009 [4] BW: Mekonnen och Hoekstra 2010 [5]
	Pepper	GWP: Rööf, 2013 [8] Land Use: Assumed as onion BW: Mekonnen och Hoekstra 2010 [5]
	Pimento	GWP: Rööf, 2013 [8] Land Use and BW: Assumed as onion
Beverages	Wine	GWP: Iannone <i>et al.</i> (2014) [10] Land Use: Mattila <i>et al.</i> (2012) [11] BW: Mekonnen och Hoekstra 2010 [5]
	Beer	GWP: Ecoinvent [6] (Barley) Land Use: Mattila <i>et al.</i> (2012) [11] BW: Mekonnen och Hoekstra 2010 [5]
	Eggs	GWP: Ecoinvent [6] Land Use: Mattila <i>et al.</i> (2012) [11] BW: Mekonnen och Hoekstra 2010 [5]
Milk—Excluding Butter		GWP: Ecoinvent [6] Land Use: Mattila <i>et al.</i> (2012) [11] BW: Mekonnen och Hoekstra 2010 [5]

Table S4. *Cont.*

Category	Food Product	Refs
Animal Fats	Offals	GWP: Ecoinvent [6] Land Use: Tuomisto and Roy, 2012 [2] BW: Mekonnen och Hoekstra 2010 [5]
	Butter, Ghee	GWP and Land Use: Assumed as part of milk BW: Mekonnen och Hoekstra 2010 [3]
	Cream	GWP: Rööös, 2013 [8] Land Use and BW: Assumed as part of milk
	Fats, Animals, Raw	Assumed as part of bovine meat
Fish, Seafood	Freshwater Fish	GWP: Audsley <i>et al.</i> 2009 [4] Land Use: Assumed as zero BW: Assumed as zero
	Demersal Fish	GWP: Rasenberg, 2013 [12] (an average) Land Use: Assumed as zero BW: Assumed as zero
	Pelagic Fish	GWP: Audsley <i>et al.</i> 2009 [4] Land Use: Assumed as zero BW: Assumed as zero
	Aquatic Animals, Others	GWP: Ziegler <i>et al.</i> 2011 [13] Land Use: Assumed as zero BW: Assumed as zero
	Infant Food	Assumed as an average of vegetable and fruits

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