

Option to choose a vegetarian meal

(Rosi, 2017, p. 6105)

Rosi, F. D. S. F. D. R. M. B. J. G. D. M. R. A. L. C. R. R. I. D. C. E. F. S. N. N. T. P. P. A. M. (2017). Environmental impact of omnivorous, ovo-lacto-vegetarian, and vegan diet. Scientific Reports 7(1), p. 6105.

<https://www.nature.com/articles/s41598-017-06466-8>

Indicator	Food group	Diet type		
		O	VG	V
		N = 51	N = 51	N = 51
Carbon Footprint (g CO ₂ eq./d)	Drinks	430.9 ± 342.9.	299.2 ± 355.3.	325.0 ± 385.0.
	Meat and Fish	1447.2 ± 756.8.	0.0 ± 0.0.	0.0 ± 0.0.
	Other animal-based foods	901.9 ± 363.6.	628.9 ± 465.2.	0.0 ± 0.0.
	Cereals and their derivatives	425.5 ± 110.1.	490.4 ± 133.4.	548.0 ± 200.7.
	Other vegetable-based foods	503.3 ± 170.1.	995.8 ± 367.5.	1422.5 ± 381.4.
	Sweets and desserts	250.8 ± 125.1.	184.1 ± 109.6.	47.0 ± 44.5.
	Total	3959.3 ± 975.8.	2598.3 ± 619.0.	2336.1 ± 496.8.

Table 1:

- Values are mean ± standard deviation of fifty-one independent measurements. Different letters indicate significantly different values ($P < 0.05$) as calculated by one-way ANOVA with *post hoc* Tukey HSD test among the three diet groups. O, omnivores; VG, ovo-lacto-vegetarians; V, vegans. Drinks: alcoholic beverages, soft drinks, and fruit juices. Meat and Fish: meat and meat products, and fish. Other animal-based foods: eggs, milk and dairy products, and animal fat. Cereals and their derivatives: cereals and their derivatives. Other vegetable-based foods: fruit, vegetables, nuts and dried fruits, legumes, potatoes and other tubers, vegetable alternatives, and vegetable fat. Sweets and desserts: sweets and desserts.

Choosing to go vegetarian for a day saves you : $3959.3 - 2598.3 = 1361$ g CO₂

Option to choose public transport

Category	Unit	g CO ₂ /unit (WTW)	g CO ₂ /unit (TTW)	g CO ₂ /unit (WTT)	Explanation
Car	Vehicle kilometer	220	181	39	Uitgegaan is van een gemiddeld wegtype en een brandstofmix van 65,5% Benzine, 31,1% Diesel, 3,4% LPG en een auto in de gewichtklasse middelzwaar (ca. 1170 kg). De voertuigkilometers kan men om rekenen naar reizigerskilometers door te delen door het aantal inzittenden. Dat kan bij de reizen waar het aantal inzittenden bekend is. De gemiddelde bezettingsgraad van auto's is 1,39 (Bron 2).

Category	Unit	g CO2/unit (WTW)	g CO2/unit (TTW)	g CO2/unit (WTT)	Explanation
Public transport	Vehicle kilometer	36	25	11	Op basis van het gemiddelde aandeel vervoerswijzen in het openbaar vervoer door reizigers: 19% OV-bus gemiddeld, 3% tram, 3% metro, 75% trein gemiddeld (bron 2).
Bike	Vehicle kilometer	0	0	0	

Table 2: transport carbon emission

With a bike you save 220 g CO2/km

With public transport you save $220 - 36 = 184$ g CO2/km

Source: CE Delft, 2014. STREAM personenvervoer 2014

Option to install solar panels

Category	Unit	g CO2/unit (WTW)	g CO2/unit (TTW)	g CO2/unit (WTT)	Explanation
Grey mix	kWh	649	572	77	Deze factor geeft een gemiddelde CO2 emissie van grijze stroom weer, incl. de voorketenemissies. Het gaat om een voor Nederland representatieve stroommix van o.a. kolen, gas en kernenergie.
Solar panels	kWh	0	0	0	De uitstoot is 0 indien de Well to Wheel benadering gebruikt wordt. Indien u de CO2 uitstoot t.g.v. de bouw van de zonnepanelen ook wilt meenemen (LCA benadering) dan is deze ca. 70 gram CO2 per kWh (Bron 27).

table 3: emission per electricity group

With solar panels you save 649 g CO2/kWh.

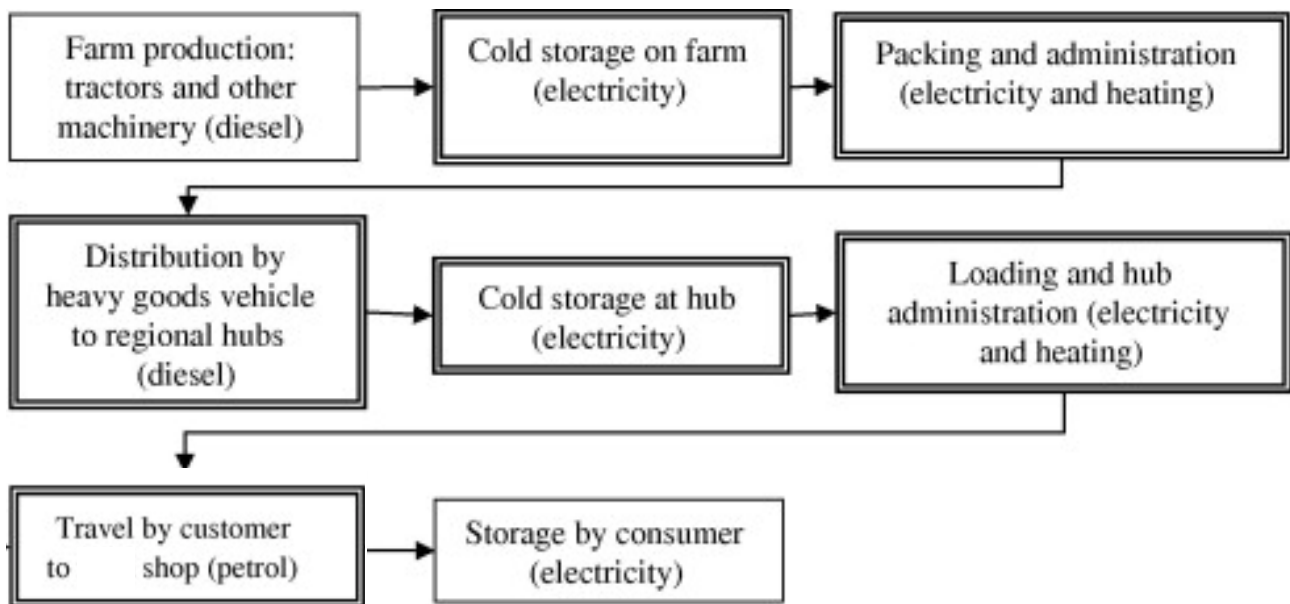
Average daily consumed kWh per person is 3.25 kWh (<https://www.cbs.nl/nl-nl/achtergrond/2018/14/energieverbruik-van-particuliere-huishoudens>)

So total daily saved is 2107 g CO2/kWh

Source: Milieucentraal, CE Delft & Stichting Stimular, 2017. co2factor stroomverbruik <https://www.co2emissiefactoren.nl/co2emissiefactoren/co2-factor-stroomverbruik-20-11-2017/>

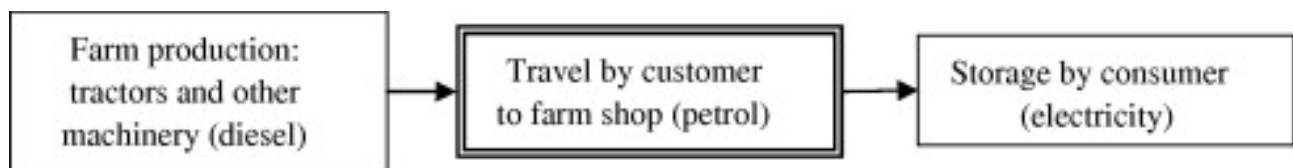
Option to buy local

Flow of product local farm



Source, <i>i</i>	<i>E_i</i> , gCO ₂ /box
Packing, cold storage and administration at farm	300
HGV transport	360
Intermediate cold storage and administration at hub	40

Flow of product large scale supermarket chain



Buying local saves you 700g CO₂

Source: Coley, D., Howard, M., & Winter, M. (2009). Local food, food miles and carbon emissions: A comparison of farm shop and mass distribution approaches. *Food Policy*, 34(2), 150-155.

Option to turn thermostat down 1 degree

Per household you save 1530 kWh/year if you lower your home temperature by 1 degree. So per day this saves you 4.2 kWh. 1Nm³ gas equals 9.8 kWh and 1 Nm³ gas equals 1890g CO₂. So this equals 816 g CO₂

	Unit	g CO ₂
Aardgas	Nm ³	1890

Source: Palmer, J., Terry, N., & Pope, P. (2012). How much energy could be saved by making small changes to everyday household behaviours. *Cambridge Architectural Research*, November.

Milieucentraal, CE Delft & Stichting Stimular, 2017. co2factor Brandstoffen energieopwekking <https://www.co2emissiefactoren.nl/2017-12-brandstoffen-energieopwekking/>