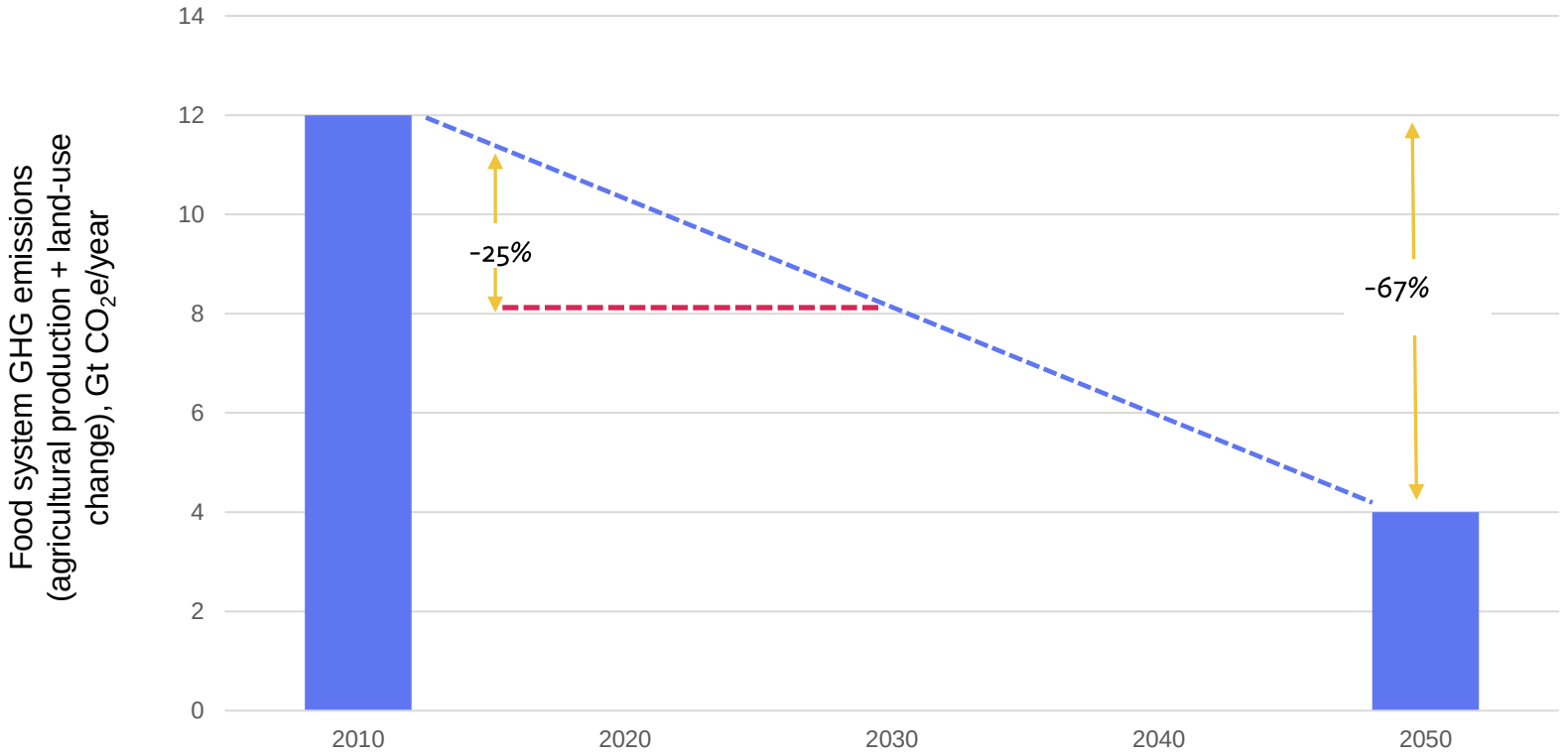
2024 Climate Impact Report: City of Copenhagen

April 14, 2025

Collective target: reduce food-related emissions by 25% by 2030



Sources: Searchinger et al. (2019), Science Based Targets Initiative (2019).

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Methods and data

GHG calculator uses emission factors from two global databases (Poore and Nemecek, Science, 2018; Searchinger et al., Nature, 2018) to estimate GHG emissions associated with production of food purchased.

RESEARCH

SUSTAINABILITY

Reducing food's environmental impacts through producers and consumers

J. Poore[1,2]* and T. Nemecek[3]

Assessing the efficiency of changes in land use for mitigating climate change

Timothy D. Searchinger[1,2]*, Stefan Wirsenius[3], Tim Beringer[4] & Patrice Dumas[5,6]

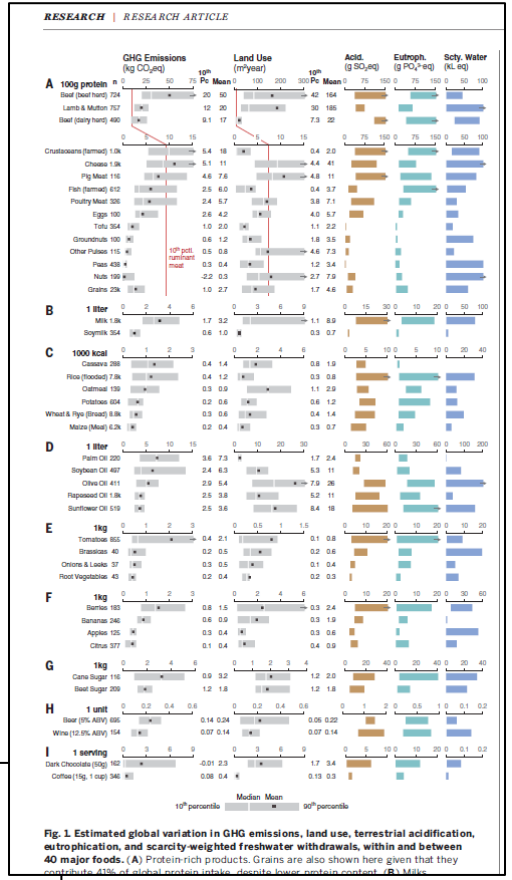

Fig. 1. Estimated global variation in GHG emissions, land use, terrestrial acidification, eutrophication, and scarcity-weighted freshwater withdrawals, within and between 40 major foods. (**A**) Protein-rich products. Grains are also shown here given that they

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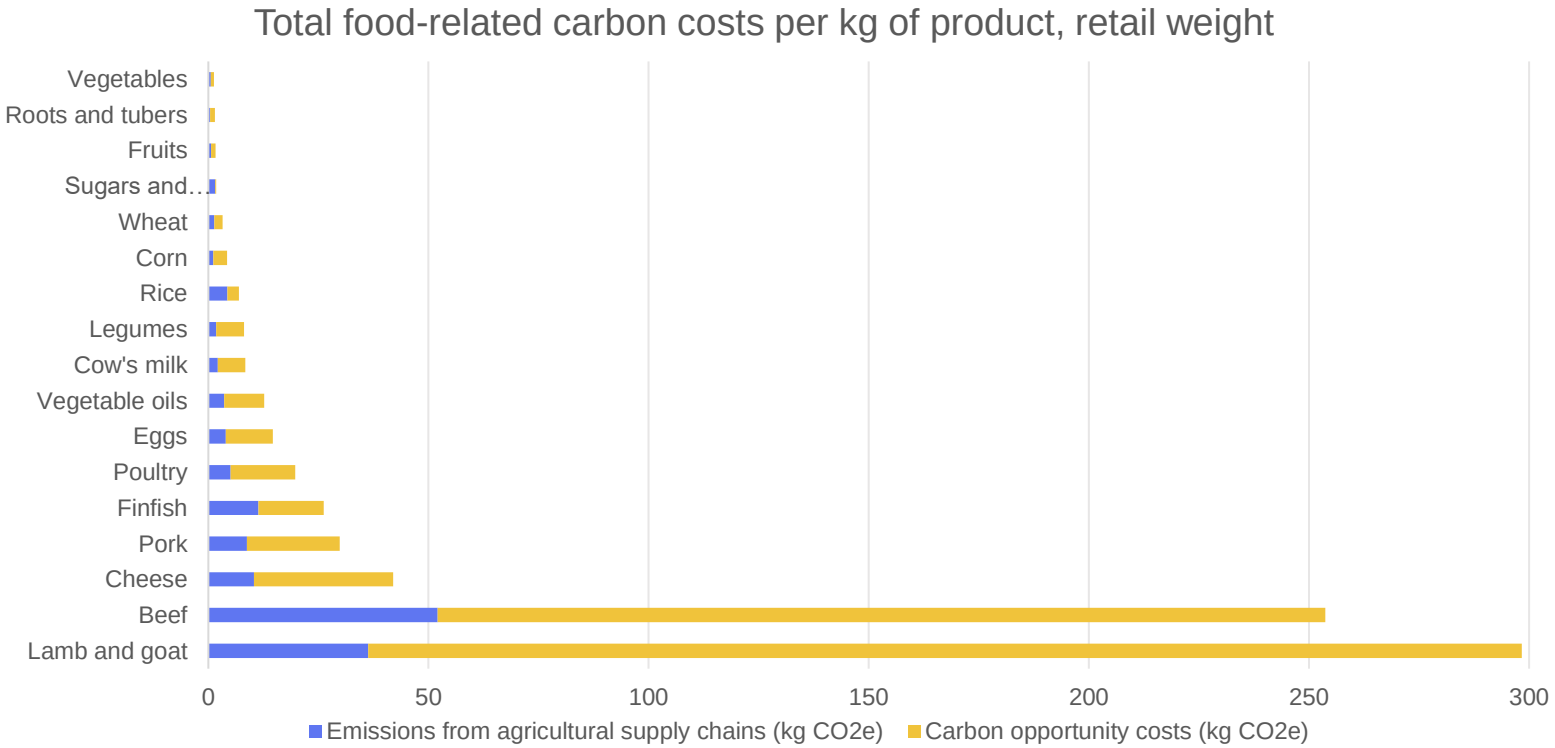
Methods and data



Note: Global average factors shown here.
Sources: Poore and Nemecek (2018); Searchinger et al. (2018).

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What's included in the annual emissions estimates?

GHG emissions from agricultural supply chains: This includes emissions from production of food and animal feed (enteric fermentation, manure management, soil fertilization, rice methane, energy use on farms and for manufacturing inputs), transport of food and animal feed, food processing, food packaging, and losses during these supply chain stages (cradle to point of purchase).
Data source: Poore and Nemecek (2018).

Carbon opportunity costs of agricultural land use: This includes total historical carbon losses from plants and soils on lands used to produce the sourced food. Because carbon losses from clearing native ecosystems to expand food production occur quickly, but food production on a cleared plot of land can continue well into the future, this metric is annualized over a period of 33 years.
Data source: Searchinger et al. (2018).

Source: Waite et al. (2019) (Cool Food Pledge technical note).

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City of Copenhagen 2024 Climate Impact Report - Overview

•**Page 3-5** shows the methodology used by the Coolfood Team when producing this report.
•**Page 7-8** shows Copenhagen's total food purchases and total food related GHG emissions for 2018 (baseline year) and 2024.
•**Page 9** shows a breakdown in the change of the total food purchases per category. Looking at the %-changes in purchasing in the different foods, we can identify some tendencies for changes in procurement since the baseline year. For example, purchases of ruminant meat (beef/lamb) decreased by 66% and pork by 22%. Purchasing of eggs went up 24%, legumes, nuts, and seeds 55% and plant-based milks 124%.
•**Page 10** shows the reduction in GHG emissions per kg of food purchased.
•**Page 11** shows Copenhagen's progress against the Coolfood absolute 25 % target by 2030.
•**Page 12** shows Copenhagen's progress against the target of -25 % GHG emissions per kg of food by 2025
•**Page 13** shows the splits between the various city administrations, and the percentage GHG reduction per kg food for each administration. It also shows how the % of beef/lamb procured correlates to emission levels per kg food.
•**Page 14-34** shows a breakdown of the climate impact by city administration.

Note: Due to an update to the emission factors in the Calculator, the 2018-21 numbers also reflect slight changes.

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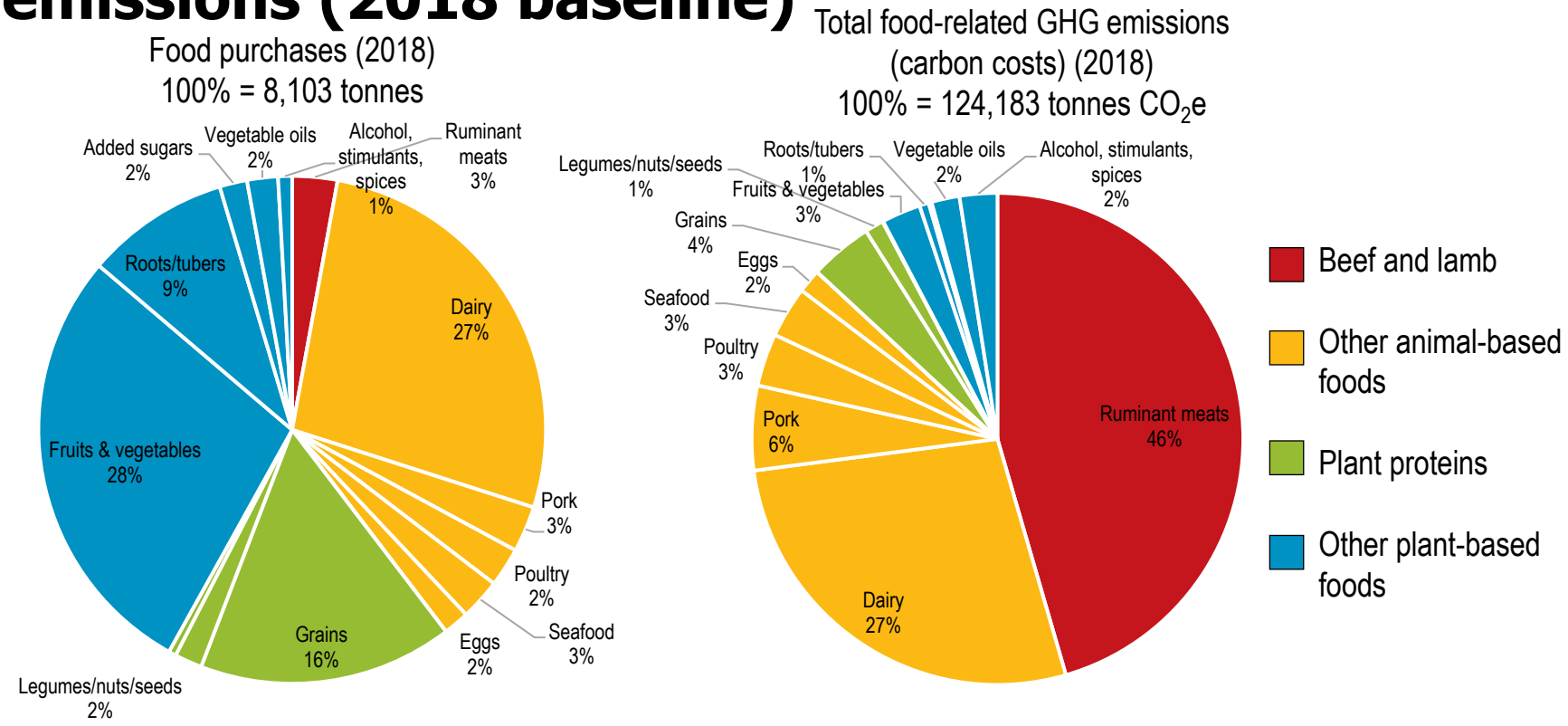
Copenhagen (TOTAL): total food-related GHG emissions (2018 baseline)



Source: Purchase data provided by member. Emission factors from Poore and Nemecek (2018) (agricultural supply chain) and Searchinger et al. (2018) (carbon opportunity costs).

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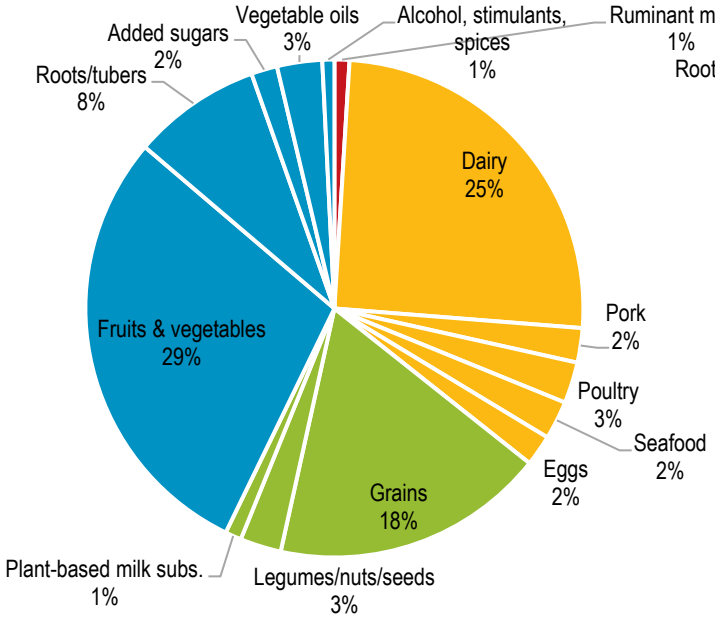
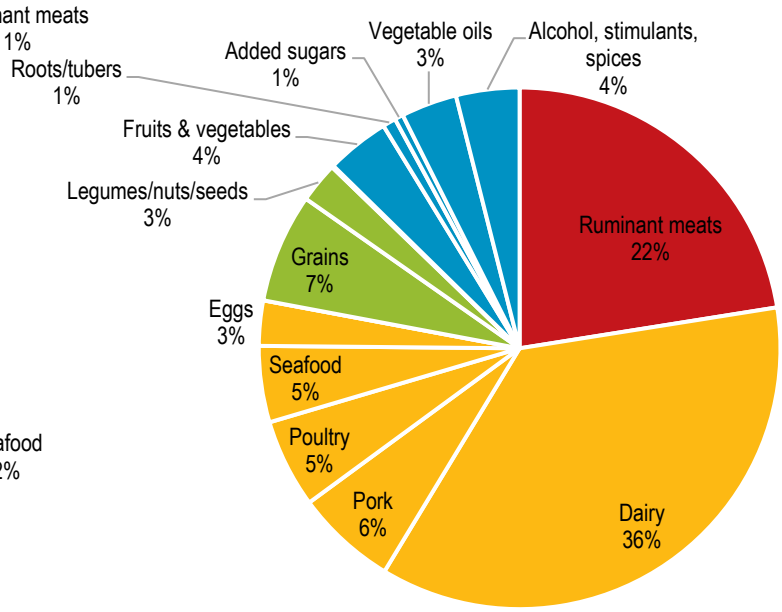
Copenhagen (TOTAL): total food-related GHG emissions (2024)

Food purchases (2024)
100% = 8,231 tonnes



Total food-related GHG emissions (carbon costs) (2024)
100% = 85,750 tonnes CO_2e



- Beef and lamb
- Other animal-based foods
- Plant proteins
- Other plant-based foods

Source: Purchase data provided by member. Emission factors from Poore and Nemecek (2018) (agricultural supply chain) and Searchinger et al. (2018) (carbon opportunity costs).

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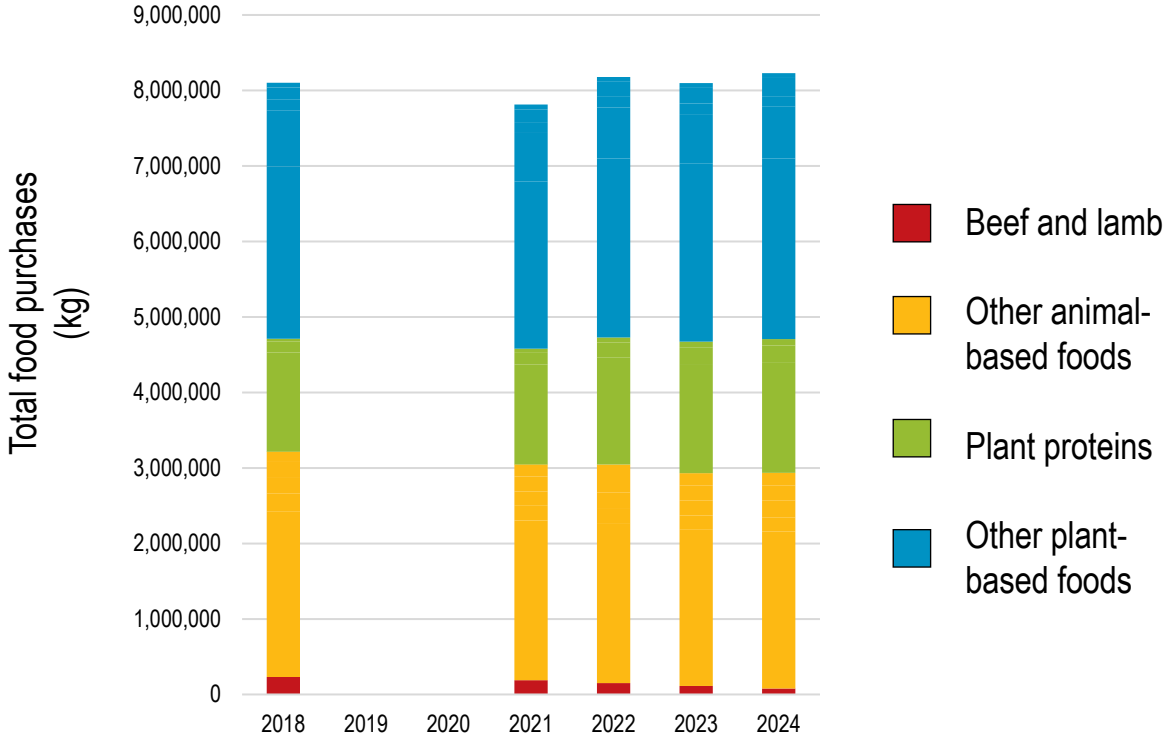
Copenhagen (TOTAL): total food purchases (2018-24)



Food type	% change (2018-24)
Beef and lamb	-65.64%
Dairy	-5.23%
Pork	-22.45%
Poultry	+9.09%
Seafood	-3.11%
Eggs	+23.78%
Grains	+11.35%
Legumes, nuts, seeds	+54.68%
Plant-based milks	+124.13%
Fruits and vegetables	+4.75%
Roots/tubers	-7.53%
Added sugars	-2.22%
Vegetable oils	+51.25%
Alcohol, stimulants, spices	-0.48%
Total	**+1.57%**

Source: Purchase data provided by member.

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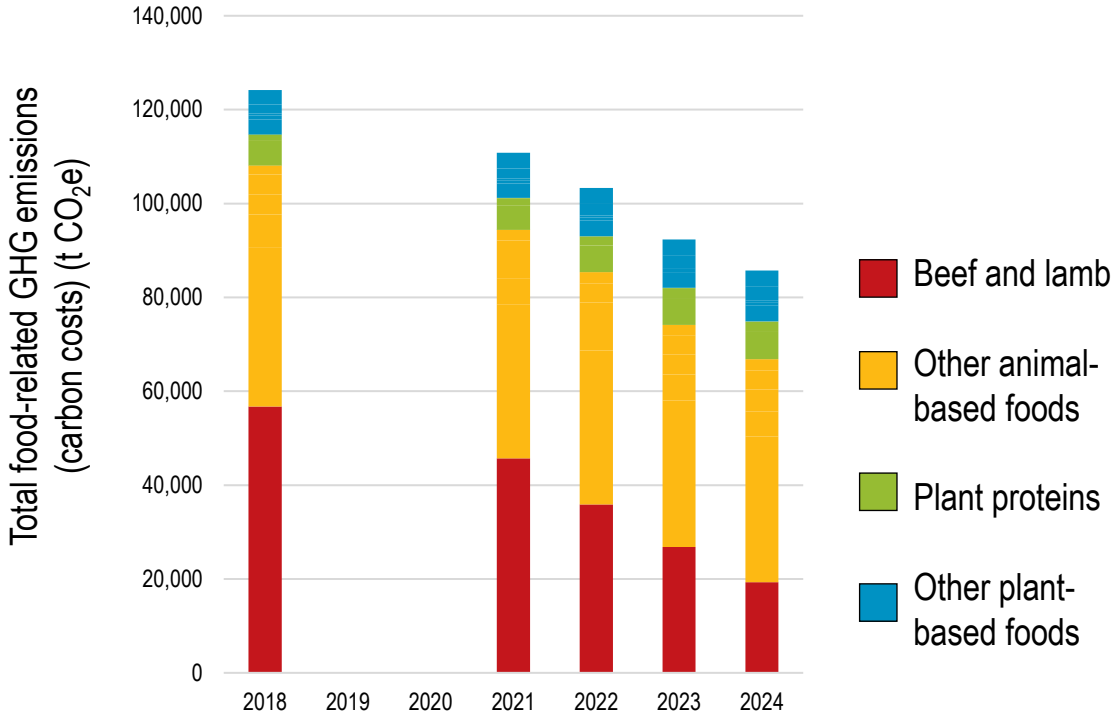
Copenhagen (TOTAL): total food-related emissions (2018-24)



	% change (2018-24)
Emissions per kg	-32.02%
Total food-related GHG emissions	-30.95%

Source: Purchase data provided by member. Emission factors from Poore and Nemecek (2018) (agricultural supply chain) and Searchinger et al. (2018) (carbon opportunity costs).

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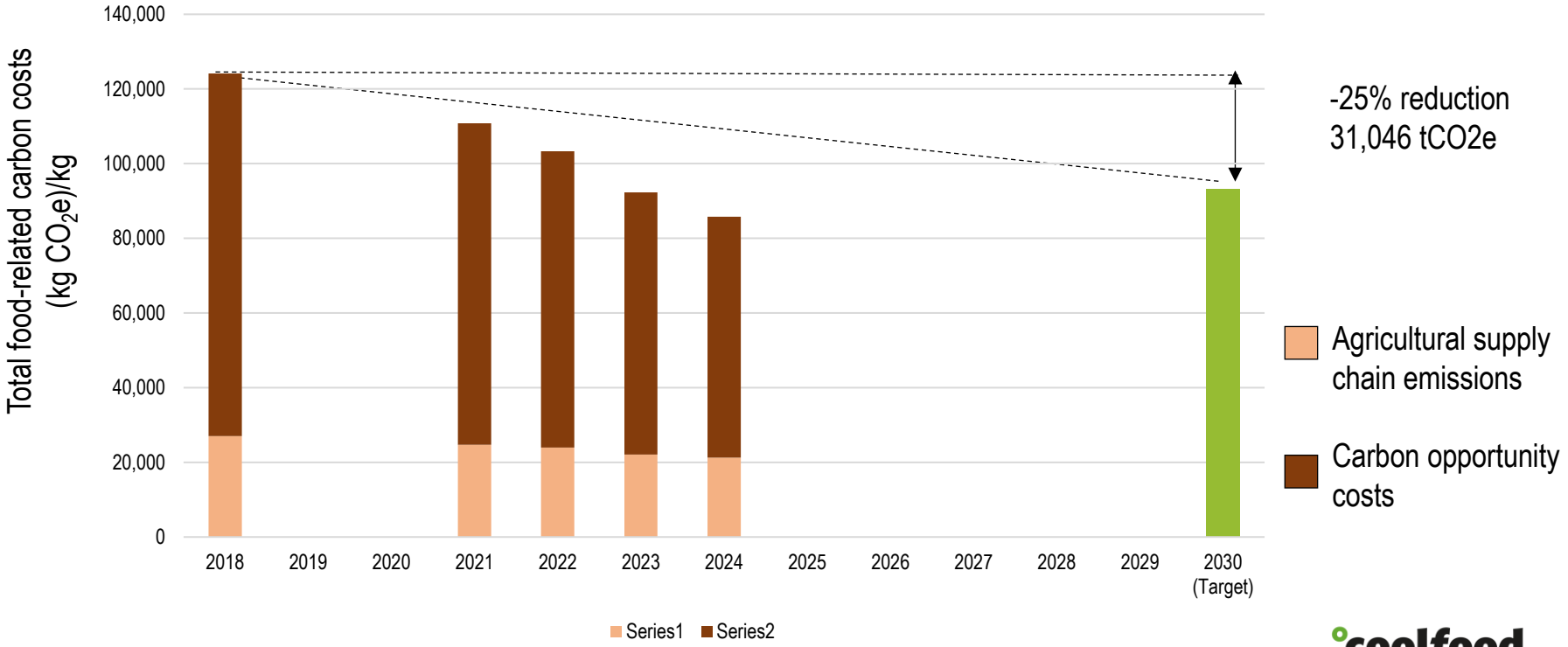
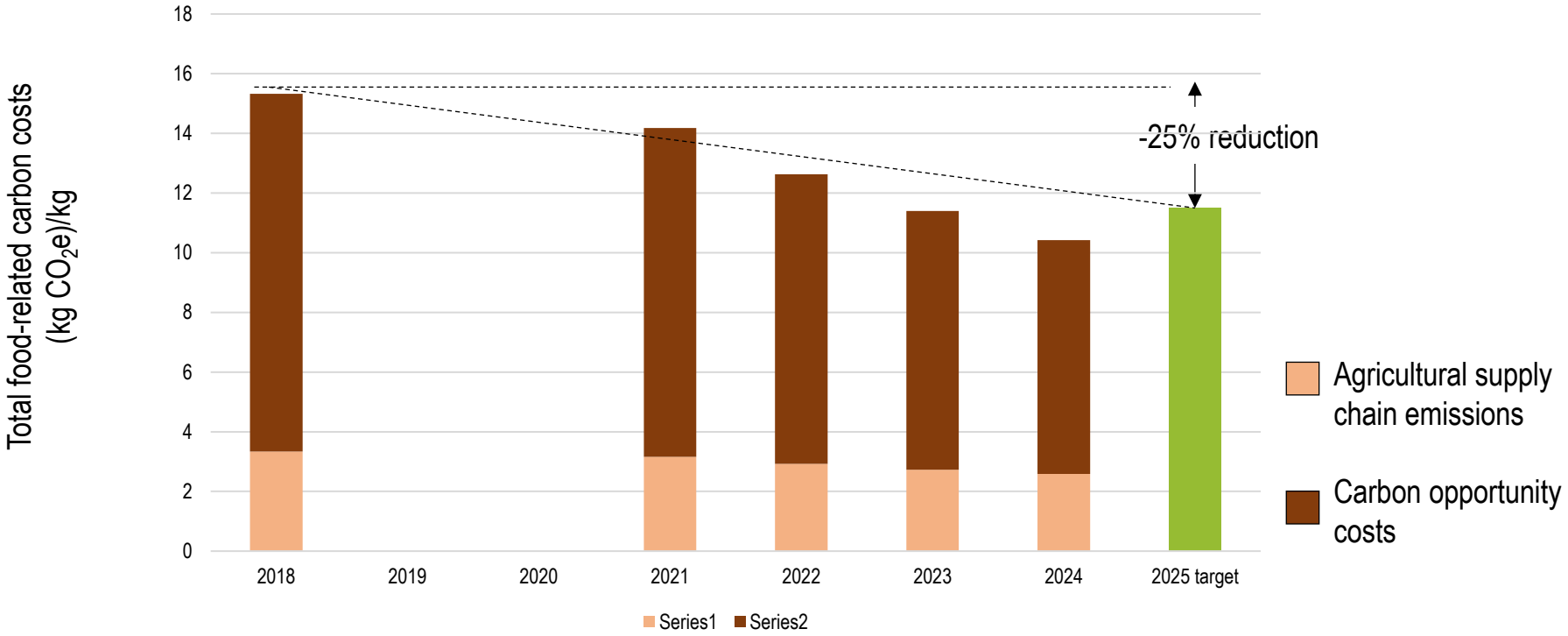
Copenhagen (TOTAL): Progress against absolute 25% target



Source: Emission factors from Poore and Nemecek (2018) (agricultural supply chain) and Searchinger et al. (2018) (carbon opportunity costs).

Copenhagen (TOTAL): Progress against city target of 25% reduction in GHG emissions per kg food



Source: Emission factors from Poore and Nemecek (2018) (agricultural supply chain) and Searchinger et al. (2018) (carbon opportunity costs).

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Splits between city administrations

Agency	Year	Food purchases (kg)	Beef/lamb purchases (kg)	Beef/lamb purchases as % of total	Agricultural supply chain emissions (t CO_2e)	Carbon opportunity costs (t CO_2e)	Total emissions (carbon costs) (t CO_2e)	Total emissions (kg CO_2e)/ kg	% change (2018-24)
BUF	2018	4,159,663	89,429	2.2%	11,393	38,858	50,251	12.08	
BUF	2021	4,113,366	65,507	1.6%	10,469	33,737	44,206	10.75	-11.04%
BUF	2022	4,426,139	55,369	1.3%	10,672	32,902	43,574	9.84	-18.51%
BUF	2023	4,526,902	46,517	1.0%	10,383	30,967	41,350	9.13	-24.39%
BUF	2024	4,629,720	22,104	0.48%	9,718	26,524	36,242	7.83	-35.20%
SUF	2018	2,828,446	99,520	3.5%	11,370	42,149	53,520	18.93	
SUF	2021	2,637,690	86,656	3.3%	10,344	37,934	48,278	18.30	-3.27%
SUF	2022	2,604,131	61,190	2.4%	9,337	32,434	41,771	16.04	-15.23%
SUF	2023	2,510,112	41,449	1.7%	8,338	27,610	35,948	14.32	-24.31%
SUF	2024	2,543,838	37,167	1.5%	8,263	26,913	35,176	13.83	-26.92%
SOF	2018	993,863	40,487	4.1%	3,878	14,710	18,588	18.70	
SOF	2021	1,020,856	35,467	3.5%	3,758	13,880	17,638	17.28	-7.62%
SOF	2022	1,018,157	29,008	2.9%	3,510	12,519	16,029	15.74	-15.82%
SOF	2023	957,296	21,199	2.2%	3,088	10,557	13,644	14.25	-23.79%
SOF	2024	947,799	18,892	2%	2,983	10,009	12,992	13.71	-26.71%
Others*	2018	121,073	3,739	3.1%	393	1,430	1,824	15.06	
Others*	2021	41,477	1,483	3.6%	150	552	703	16.94	+12.47%
Others*	2022	130,979	3,440	2.6%	439	1,521	1,959	14.96	-0.70%
Others*	2023	102,385	2,114	2.1%	311	1,054	1,366	13.34	-11.46%
Others*	2024	109,233	1,953	1.8%	308	1,031	1,339	12.26	-18.61%
TOTAL – Copenhagen	2018	8,103,045	233,176	2.9%	27,035	97,148	124,183	15.33	
TOTAL – Copenhagen	2021	7,813,390	189,112	2.4%	24,722	86,103	110,825	14.18	-7.45%
TOTAL –Copenhagen	2022	8,179,406	149,008	1.8%	23,958	79,375	103,333	12.63	-17.57%
TOTAL – Copenhagen	2023	8,096,695	111,278	1.4%	22,120	70,188	92,308	11.40	-25.61%
TOTAL - Copennhagen	**2024**	**8,230,590**	**80,117**	**1%**	**21,273**	**64,477**	**85,750**	**10.42**	**-32.02%**

City of Copenhagen 2018-24 Climate Impact Report - Breakdown by city administration

The following pages include a breakdown of the climate impact by city administration.
BUF: The Children and Youth Administration
SUF: The Health and Care Administration
SOF: The Social Services Administration
Others:

- BIF: The Employment and Integration Administration
- KFF: The Culture and Leisure Administration
- TMF: The Technical and Environmental Administration
- ØKF: The Finance Administration

2024 percentage of total emissions by administration:

BUF: 42.3%
SUF: 41.0%
SOF: 15.2%
Others: 1.56%

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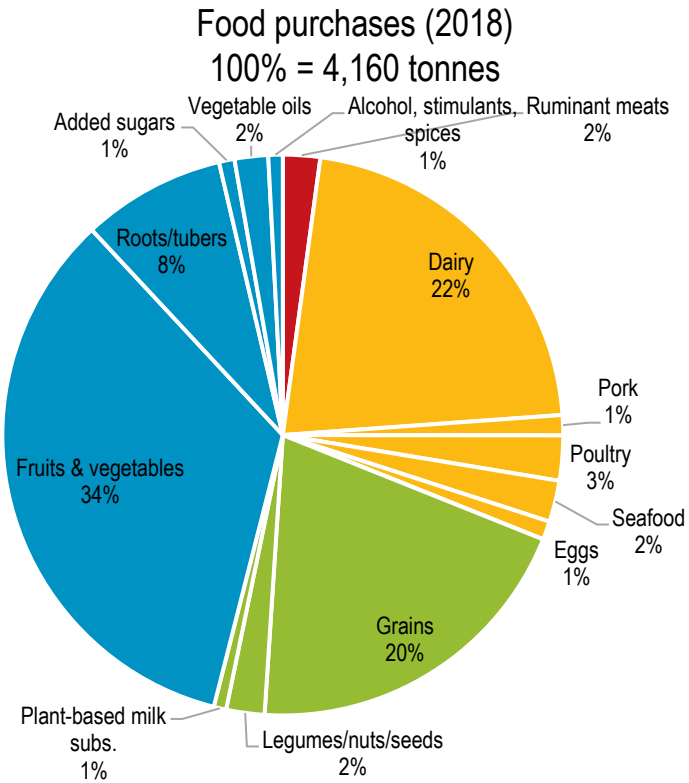
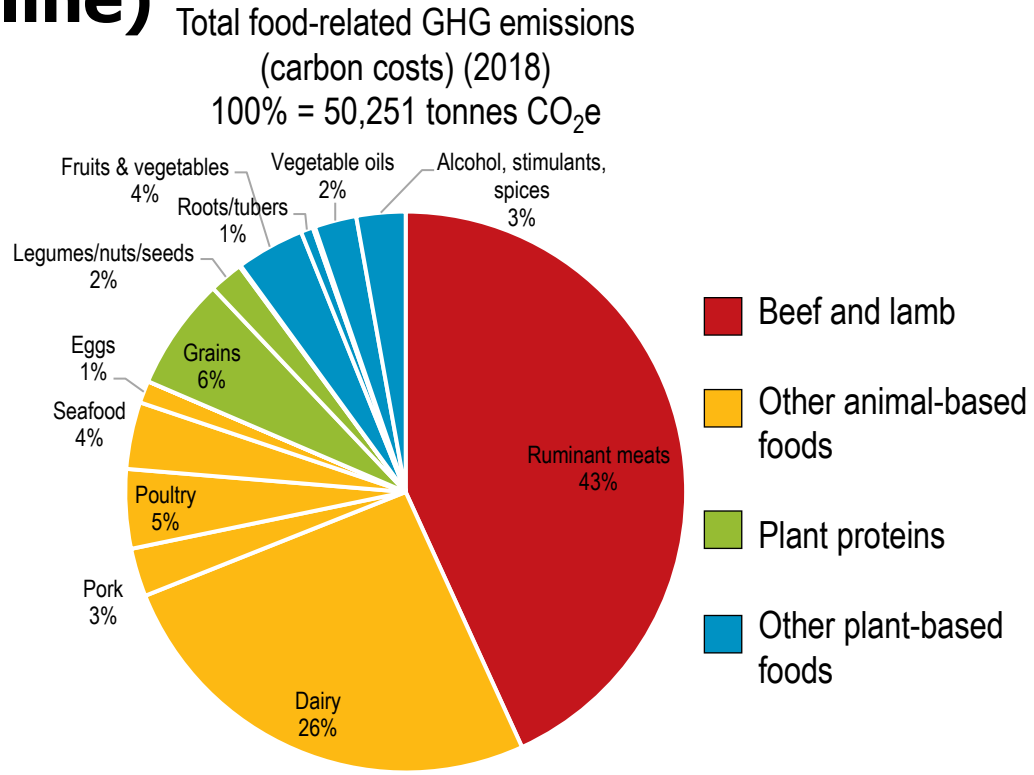
Copenhagen (BUF): total food-related GHG emissions (2018 baseline)





Source: Purchase data provided by member. Emission factors from Poore and Nemecek (2018) (agricultural supply chain) and Searchinger et al. (2018) (carbon opportunity costs).

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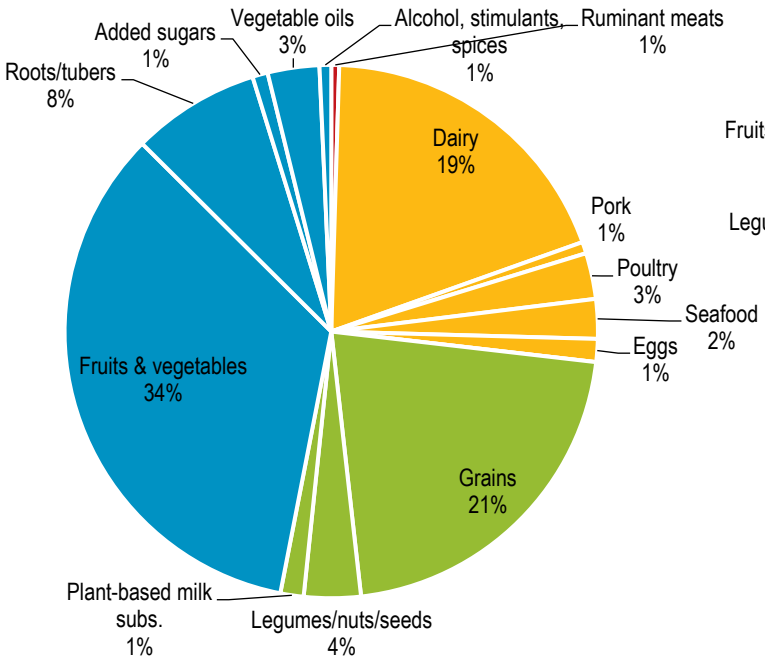
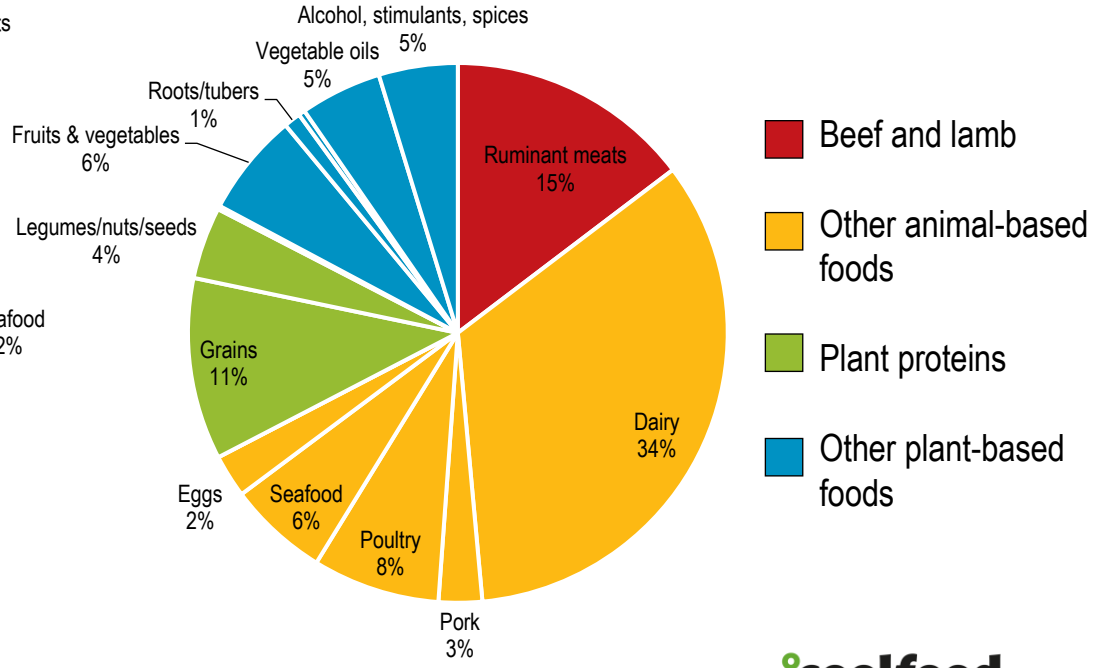
Copenhagen (BUF): total food-related GHG emissions (2024)

Food purchases (2024)
100% = 4,630 tonnes



Total food-related GHG emissions (carbon costs) (2024)
100% = 36,242 tonnes CO_2e



Source: Purchase data provided by member. Emission factors from Poore and Nemecek (2018) (agricultural supply chain) and Searchinger et al. (2018) (carbon opportunity costs).

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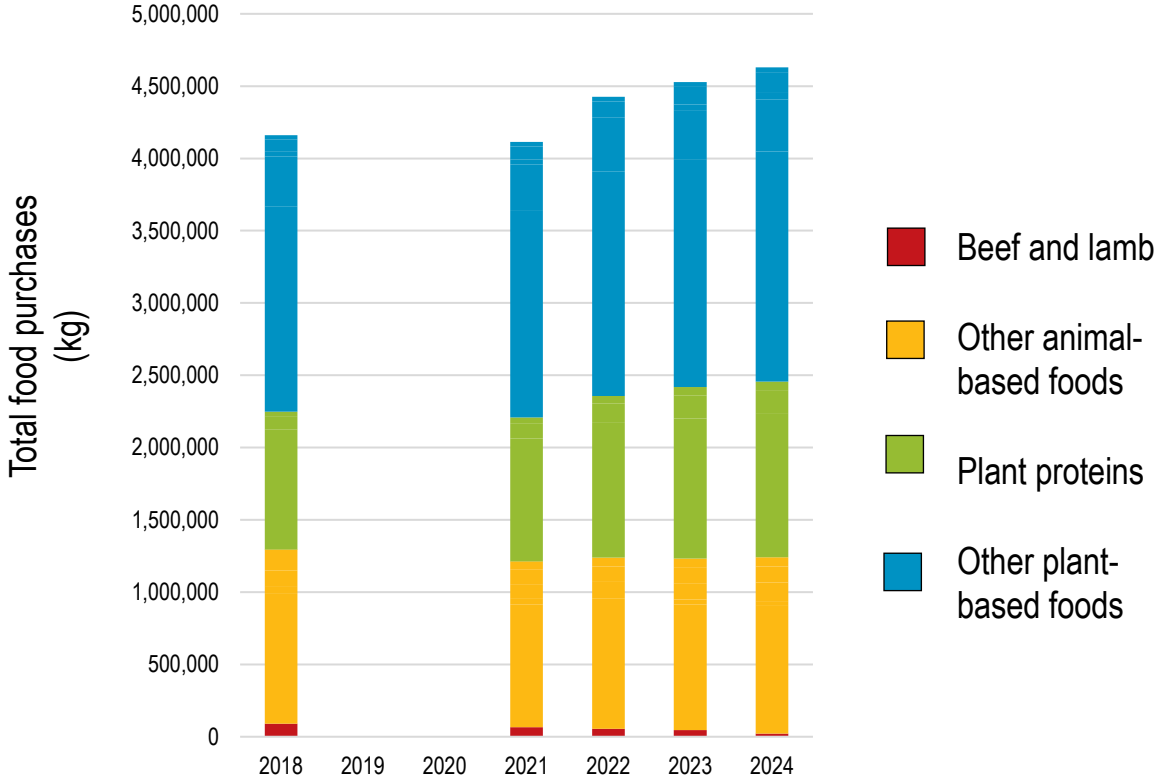
Copenhagen (BUF): total food purchases (2018-24)



Food type	% change (2018-24)
Beef and lamb	-75.58%
Dairy	-2.33%
Pork	-33.04%
Poultry	+19.44%
Seafood	+11.90%
Eggs	+44.24%
Grains	+19.03%
Legumes/nuts/seeds	+73.63%
Plant-based milk subs.	+117.34%
Fruits & vegetables	+12.07%
Roots/tubers	+4.53%
Added sugars	+15.83%
Vegetable oils	+480.06%
Alcohol, stimulants, spices	+11.96%
Total	**+11.30%**

Source: Purchase data provided by member.

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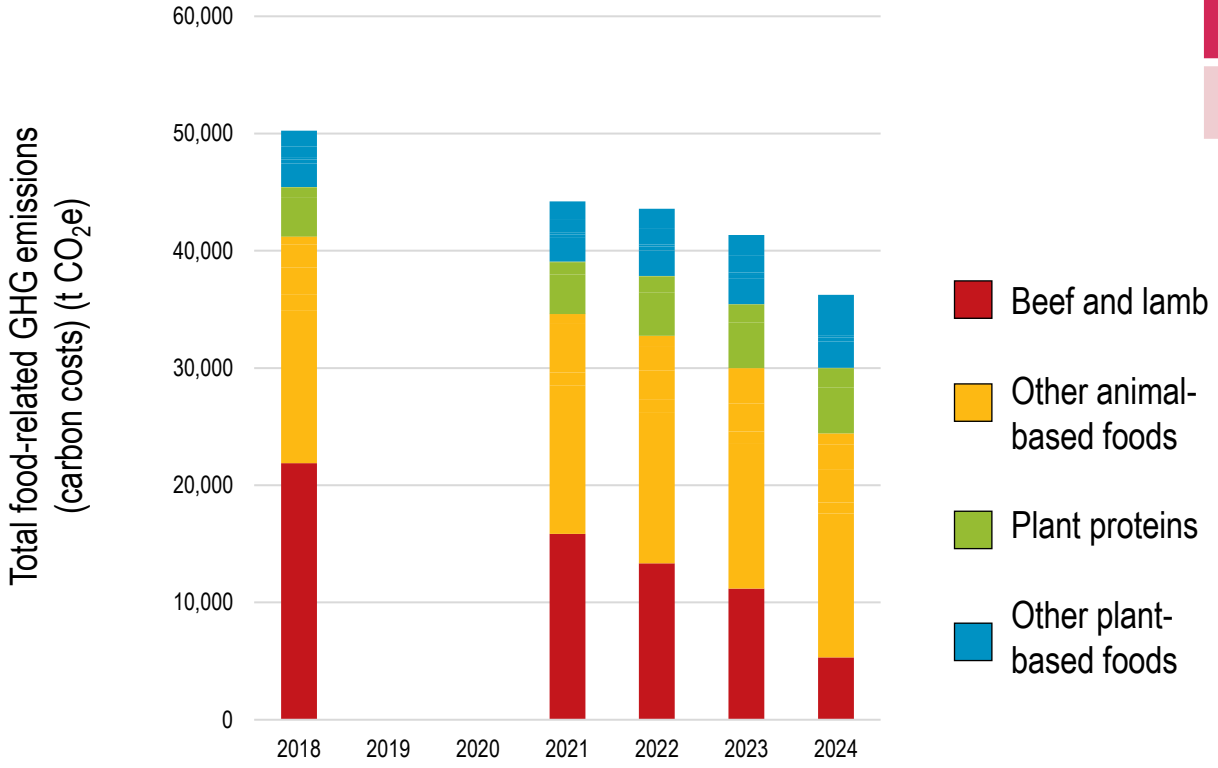
Copenhagen (BUF): total food-related emissions (2018-24)

	% change (2018-24)
Emissions per kg	-35.20%



Source: Purchase data provided by member. Emission factors from Poore and Nemecek (2018) (agricultural supply chain) and Searchinger et al. (2018) (carbon opportunity costs).

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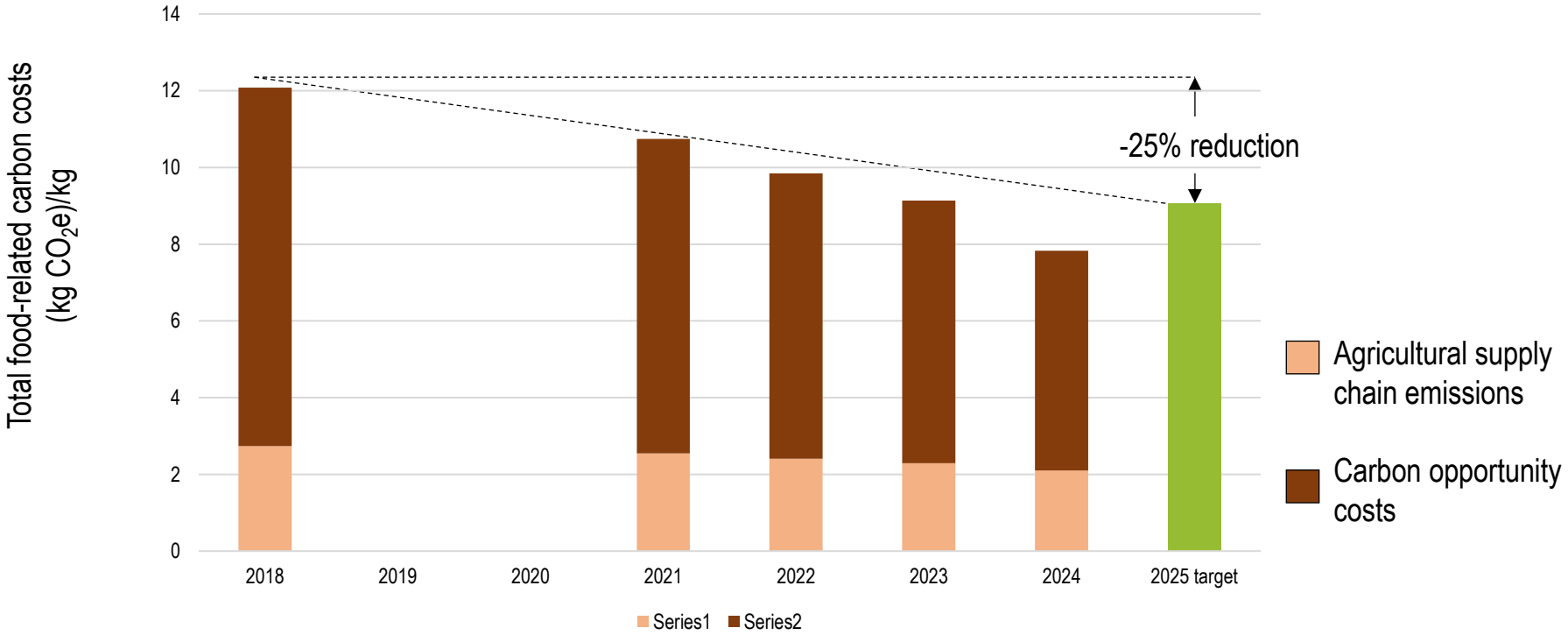
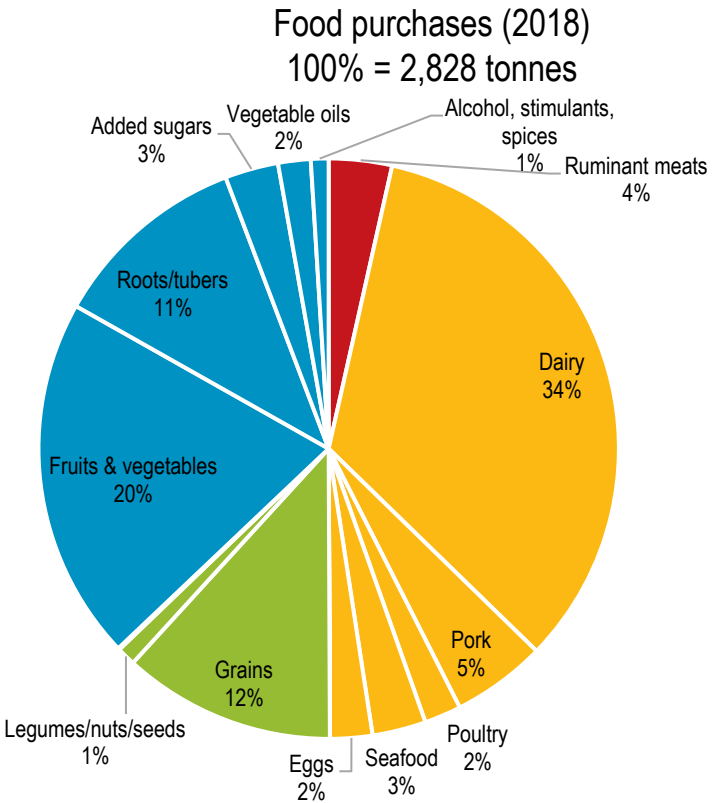
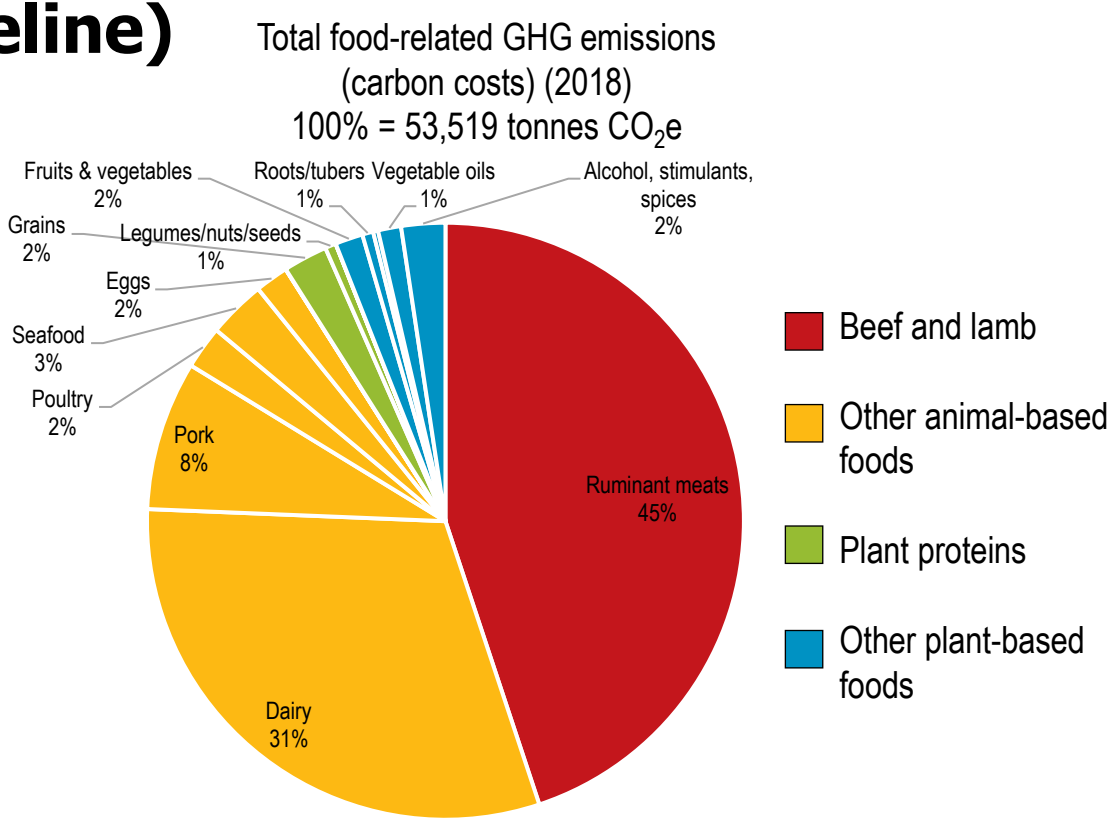
Copenhagen (BUF): Progress against city target of 25% reduction in GHG emissions per kg food



Source: Emission factors from Poore and Nemecek (2018) (agricultural supply chain) and Searchinger et al. (2018) (carbon opportunity costs).

Copenhagen (SUF): total food-related GHG emissions (2018 baseline)





Source: Purchase data provided by member. Emission factors from Poore and Nemecek (2018) (agricultural supply chain) and Searchinger et al. (2018) (carbon opportunity costs).

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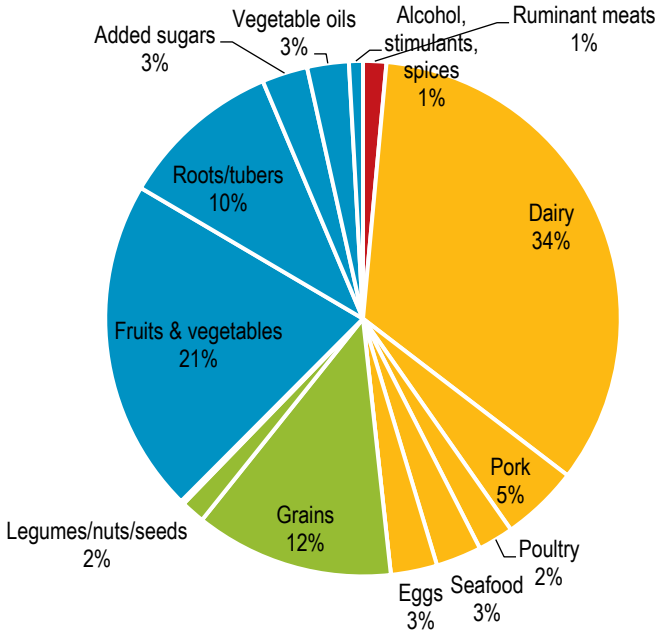
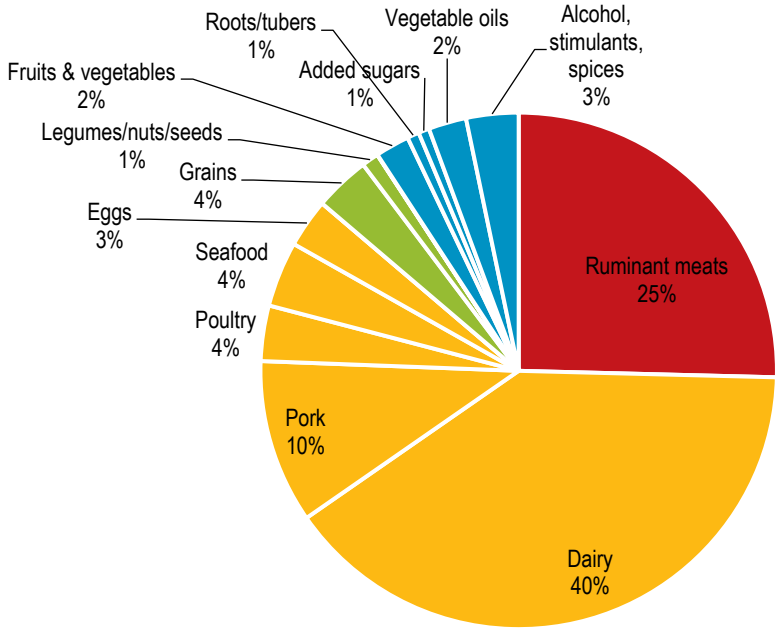
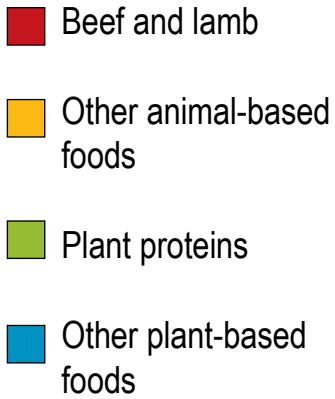
Copenhagen (SUF): total food-related GHG emissions (2024)

Food purchases (2024)
100% = 2,544 tonnes



Total food-related GHG emissions (carbon costs) (2024)
100% = 35,176 tonnes CO_2e





Source: Purchase data provided by member. Emission factors from Poore and Nemecek (2018) (agricultural supply chain) and Searchinger et al. (2018) (carbon opportunity costs).

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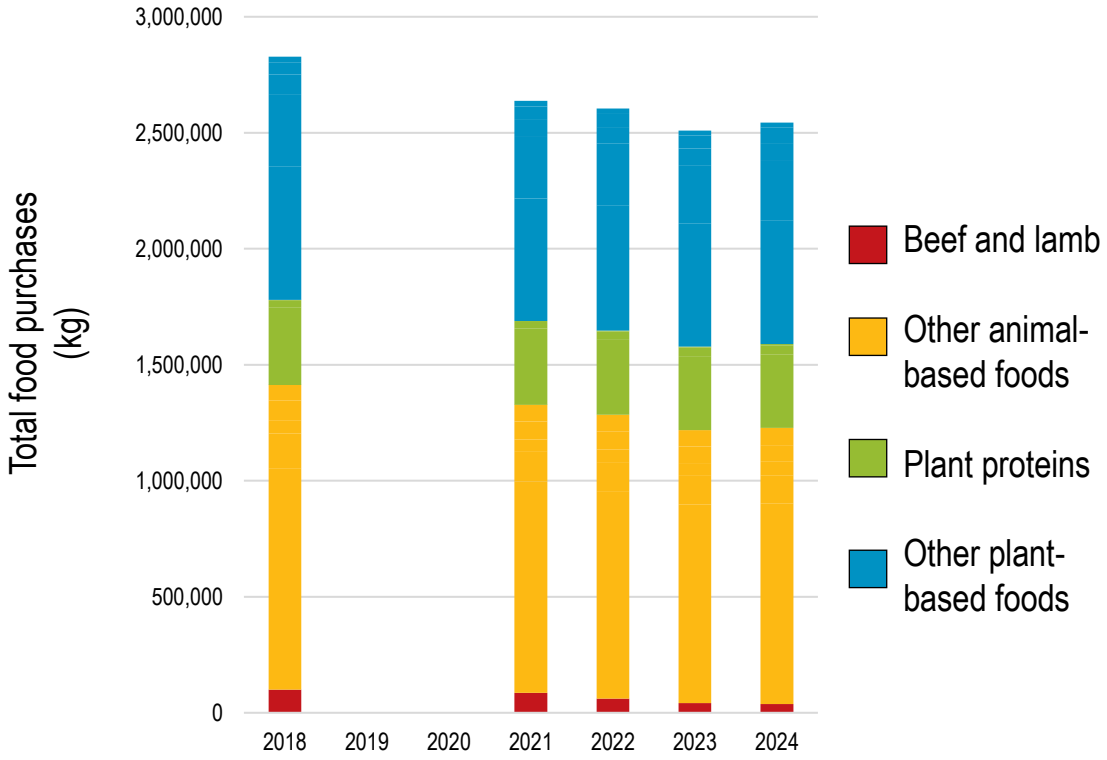
Copenhagen (SUF): total food purchases (2018-24)



Food type	% change (2018-24)
Beef and lamb	-62.65%
Dairy	-19.63%
Pork	-16.75%
Poultry	-1.89%
Seafood	-14.12%
Eggs	+11.33%
Grains	-5.46%
Legumes, nuts, seeds	+30.37%
Plant-based milks	+124.95%
Fruits and vegetables	-6.82%
Roots/tubers	-17.14%
Added sugars	-13.44%
Vegetable oils	+29.50%
Alcohol, stimulants, spices	-17.14%
Total	**-10.06%**

Source: Purchase data provided by member.

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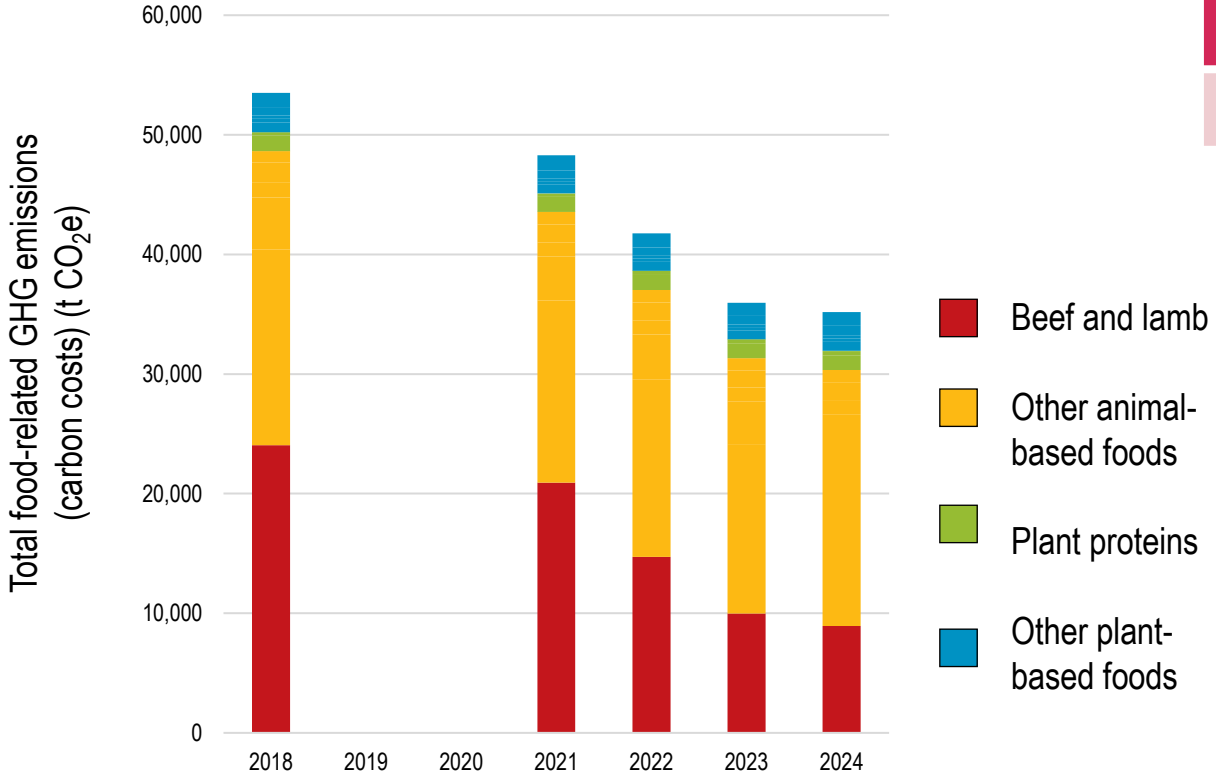
Copenhagen (SUF): total food-related emissions (2018-24)

	% change (2018-24)
Emissions per kg	-26.92%



Source: Purchase data provided by member. Emission factors from Poore and Nemecek (2018) (agricultural supply chain) and Searchinger et al. (2018) (carbon opportunity costs).

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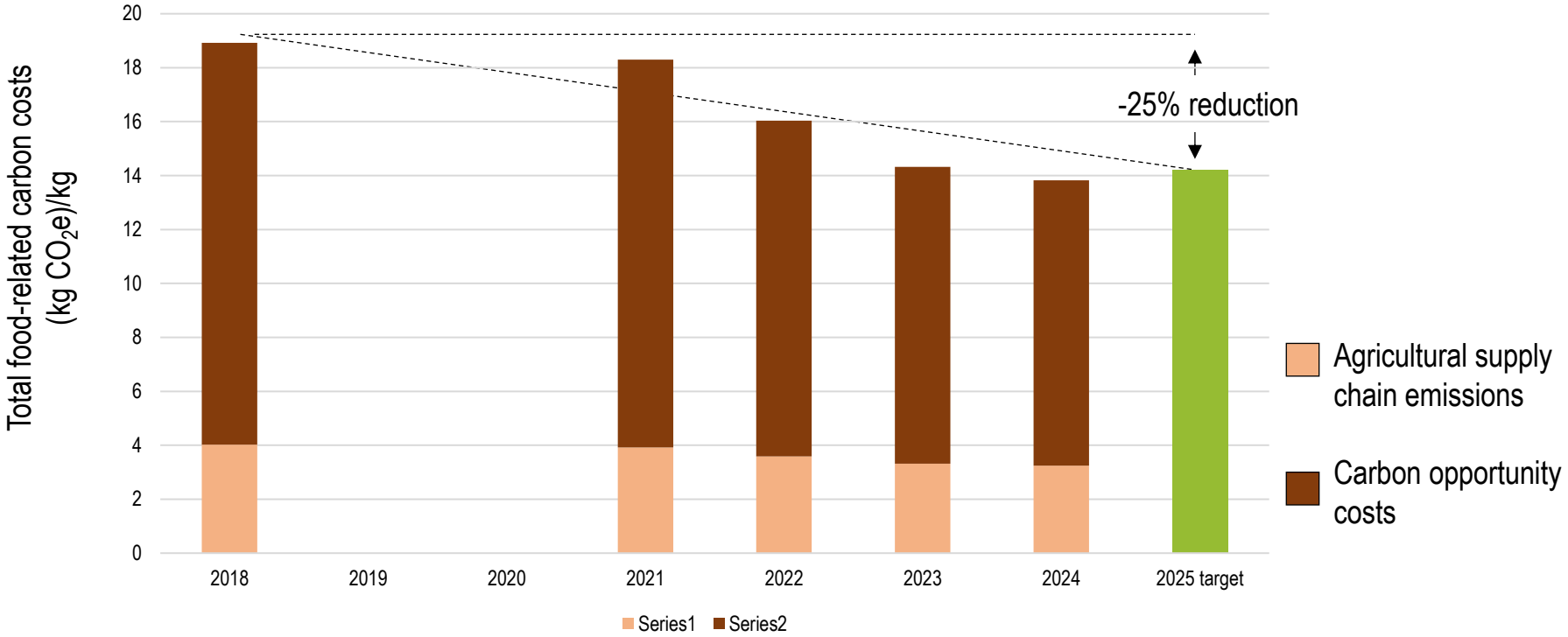
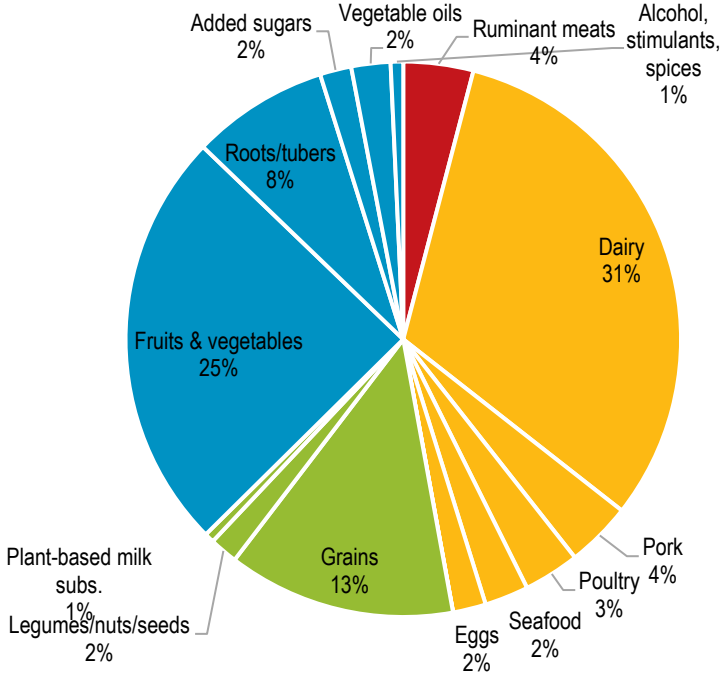
Copenhagen (SUF): Progress against city target of 25% reduction in GHG emissions per kg food



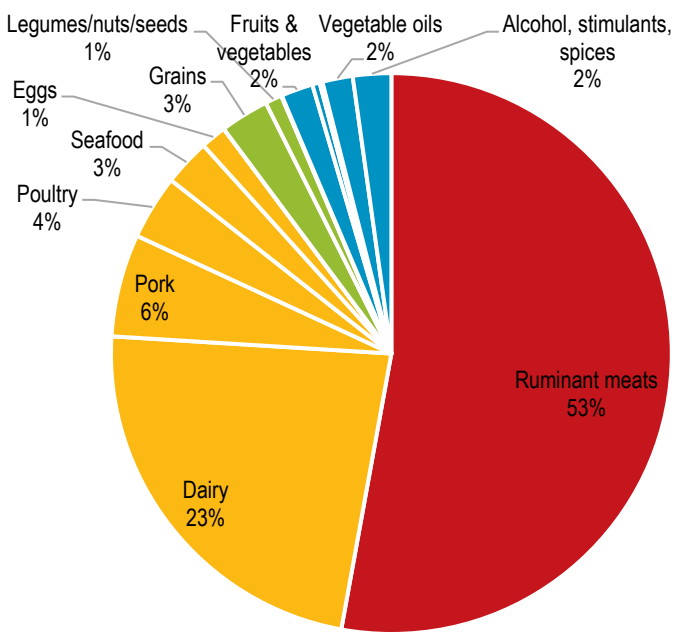
Source: Emission factors from Poore and Nemecek (2018) (agricultural supply chain) and Searchinger et al. (2018) (carbon opportunity costs).

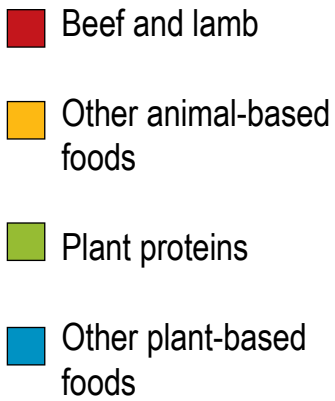
Copenhagen (SOF): total food-related GHG emissions (2018 baseline)

Food purchases (2018)
100% = 994 tonnes



Total food-related GHG emissions (carbon costs) (2018)
100% = 18,588 tonnes CO_2e





Source: Purchase data provided by member. Emission factors from Poore and Nemecek (2018) (agricultural supply chain) and Searchinger et al. (2018) (carbon opportunity costs).

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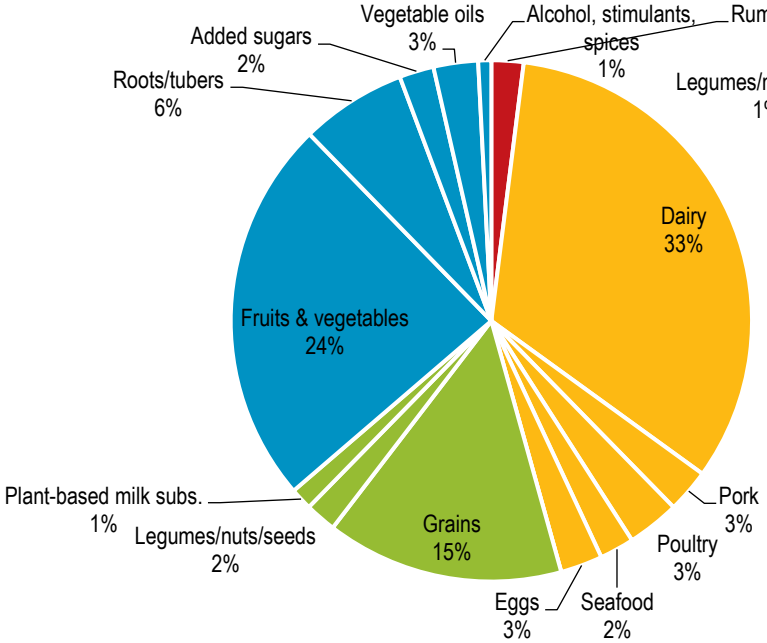
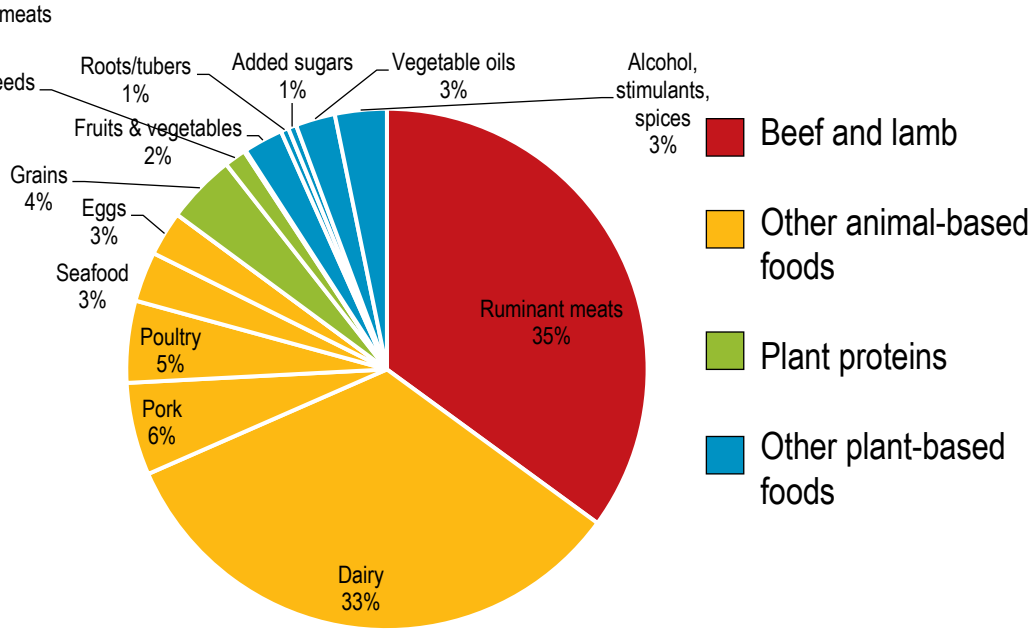
Copenhagen (SOF): total food-related GHG emissions (2024)

Food purchases (2024)
100% = 948 tonnes



Total food-related GHG emissions (carbon costs) (2024)
100% = 12,992 tonnes CO_2e



Source: Purchase data provided by member. Emission factors from Poore and Nemecek (2018) (agricultural supply chain) and Searchinger et al. (2018) (carbon opportunity costs).

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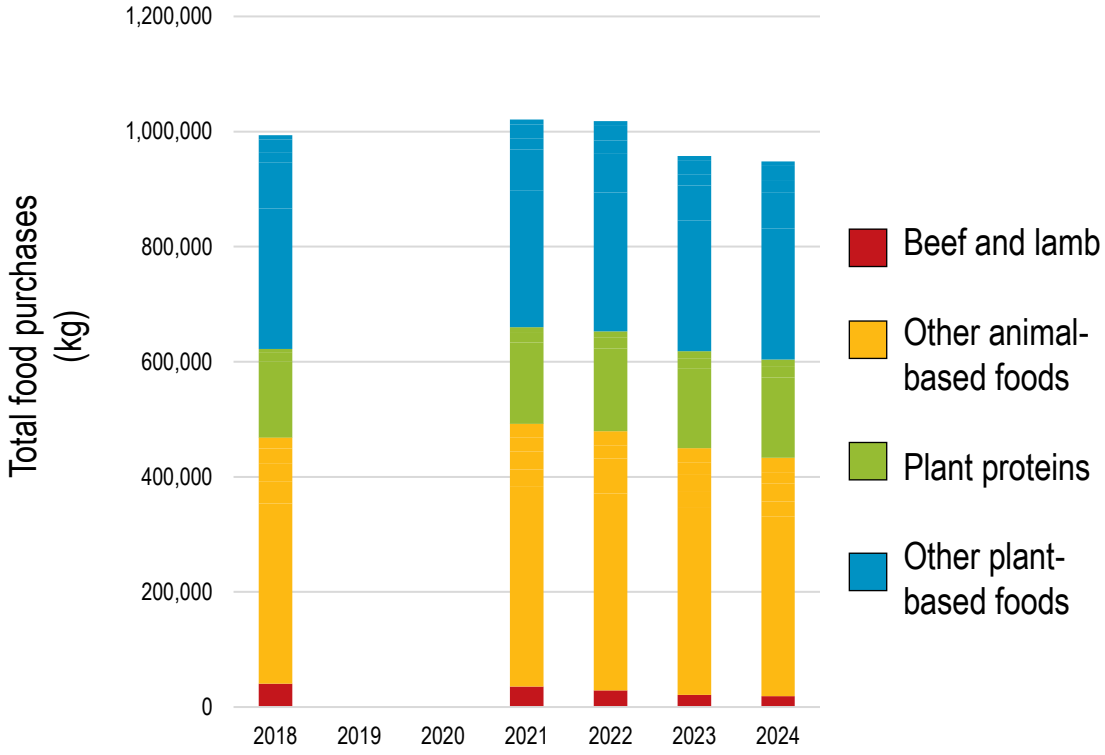
Copenhagen (SOF): total food purchases (2018-24)



Food type	% change (2018-24)
Beef and lamb	-53.34%
Dairy	-0.16%
Pork	-32.43%
Poultry	-4.83%
Seafood	-20.17%
Eggs	+29.63%
Grains	+5.96%
Legumes/nuts/seeds	+12.09%
Plant-based milk subs.	+131.10%
Fruits & vegetables	-6.90%
Roots/tubers	-21.35%
Added sugars	+11.46%
Vegetable oils	+15.60%
Alcohol, stimulants, spices	+5.80%
Total	**-4.63%**

Source: Purchase data provided by member.

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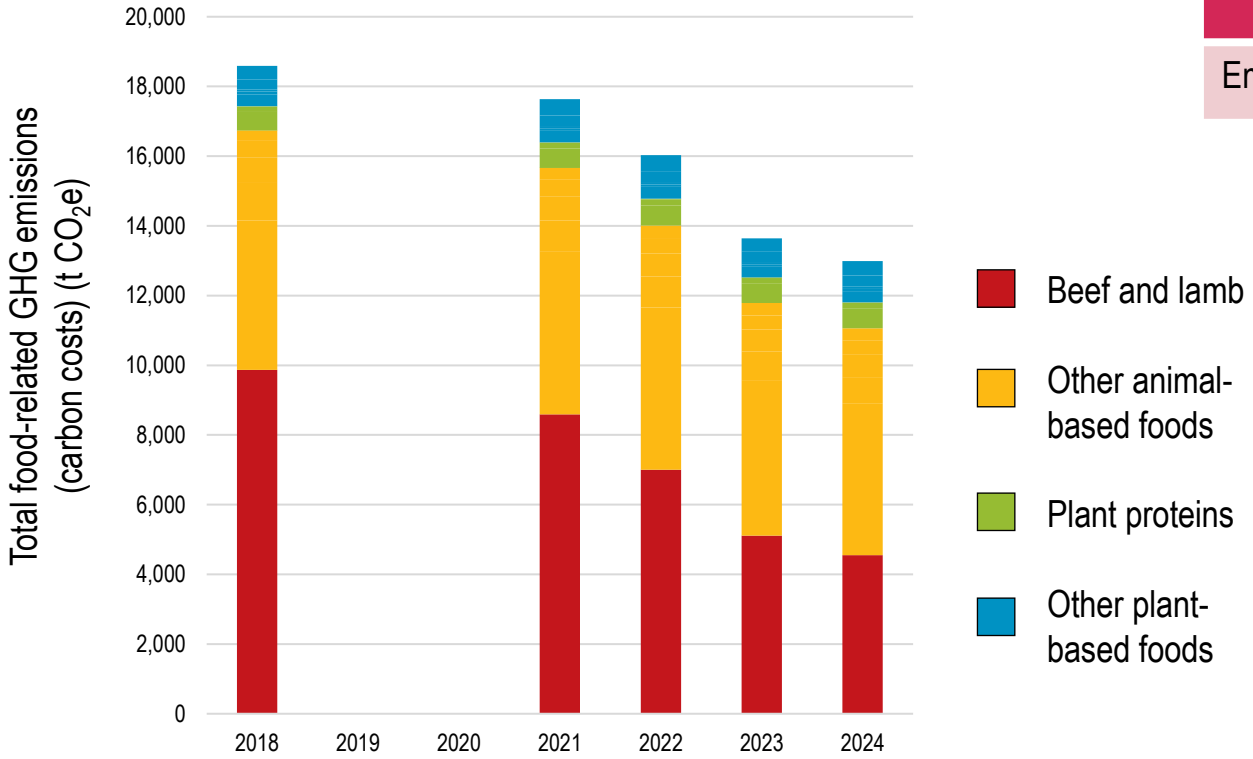
Copenhagen (SOF): total food-related emissions (2018-24)

	% change (2018-24)
Emissions per kg	-26.71%



Source: Purchase data provided by member. Emission factors from Poore and Nemecek (2018) (agricultural supply chain) and Searchinger et al. (2018) (carbon opportunity costs).

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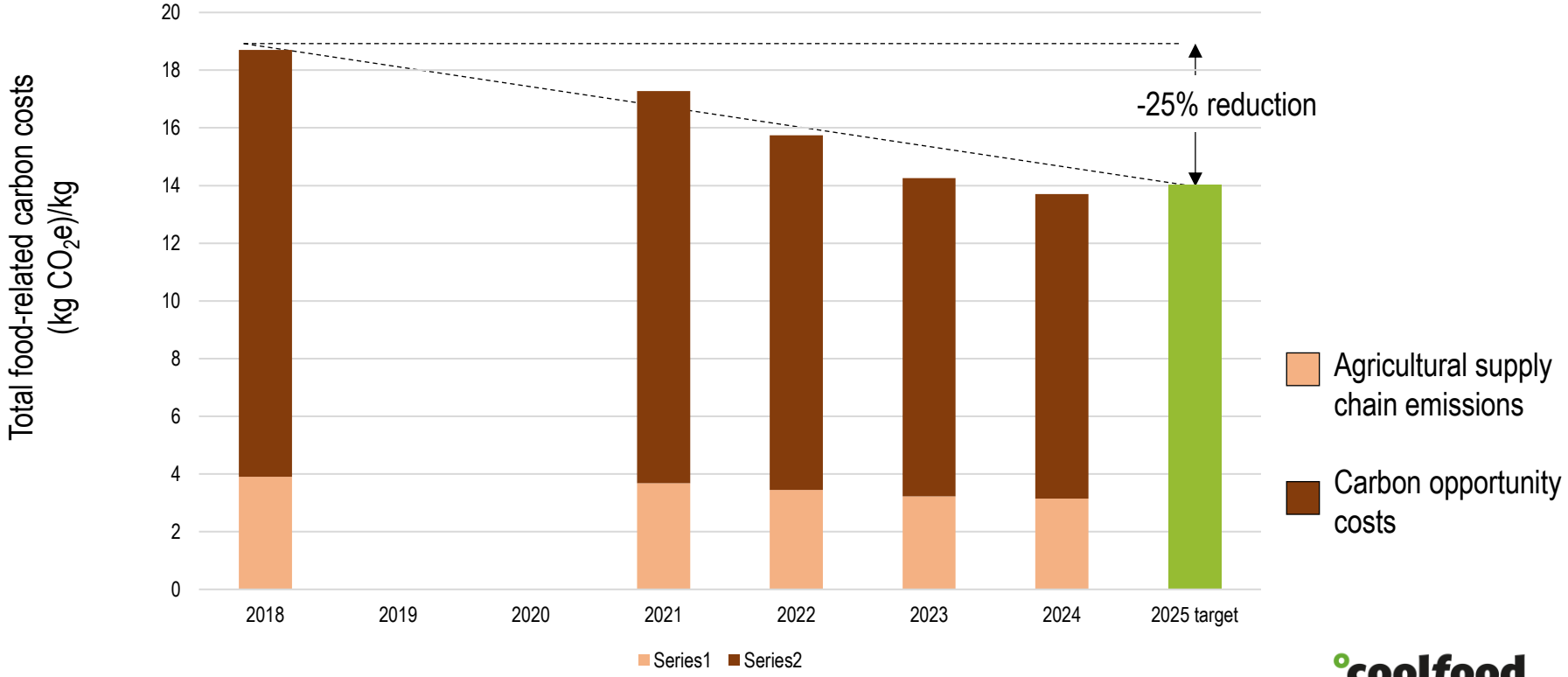
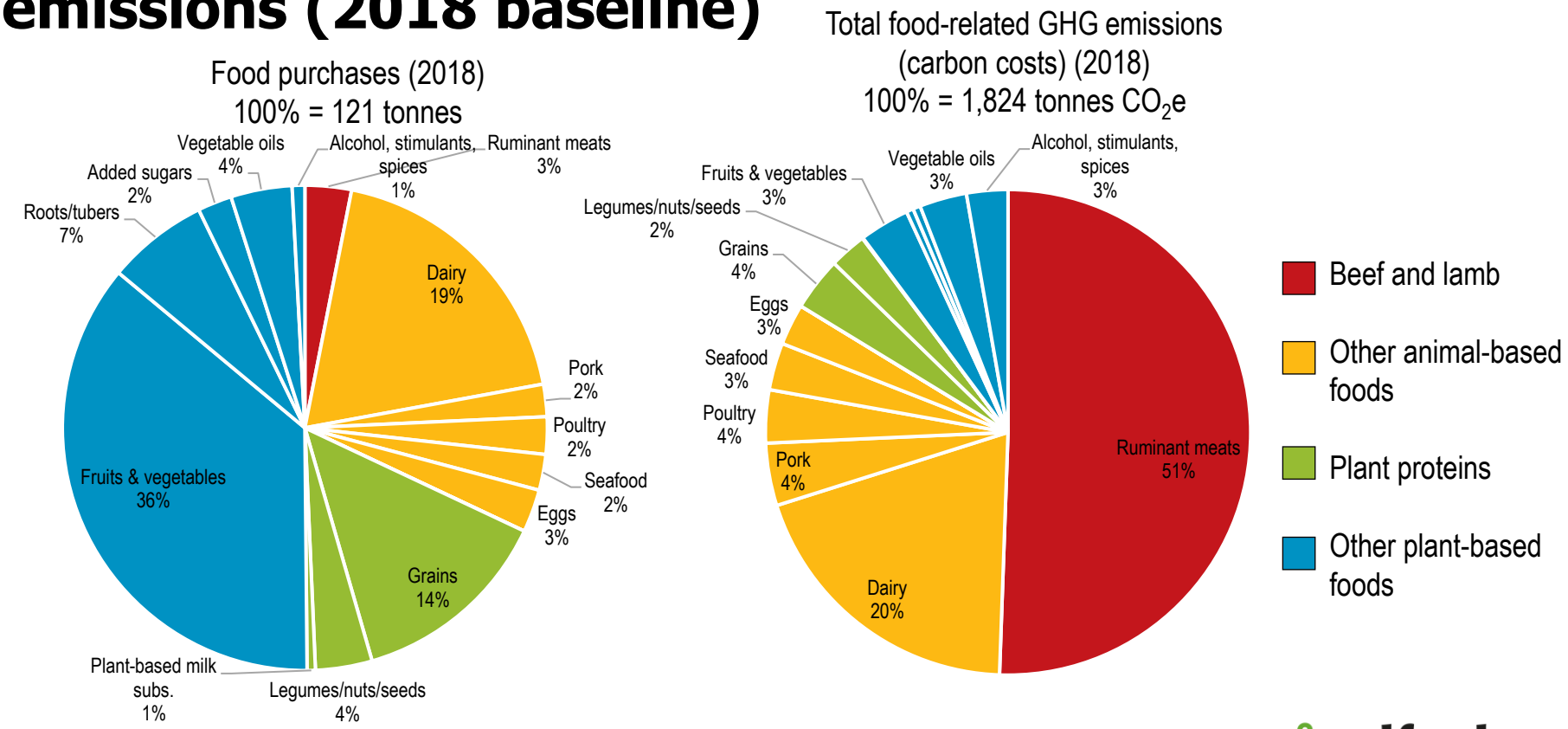
Copenhagen (SOF): Progress against city target of 25% reduction in GHG emissions per kg food



Source: Emission factors from Poore and Nemecek (2018) (agricultural supply chain) and Searchinger et al. (2018) (carbon opportunity costs).

Copenhagen (Others): total food-related GHG emissions (2018 baseline)



Source: Purchase data provided by member. Emission factors from Poore and Nemecek (2018) (agricultural supply chain) and Searchinger et al. (2018) (carbon opportunity costs).

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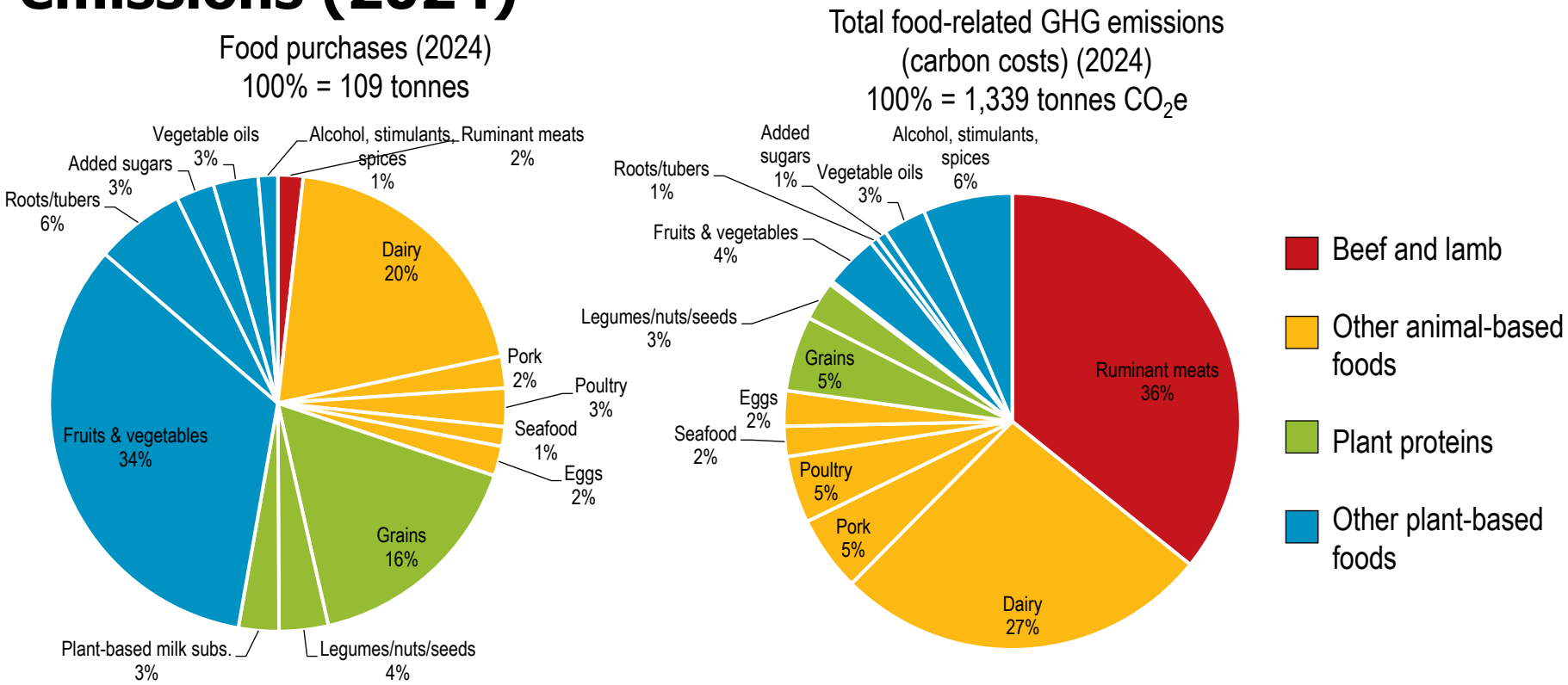
Copenhagen (Others): total food-related GHG emissions (2024)



Source: Purchase data provided by member. Emission factors from Poore and Nemecek (2018) (agricultural supply chain) and Searchinger et al. (2018) (carbon opportunity costs).

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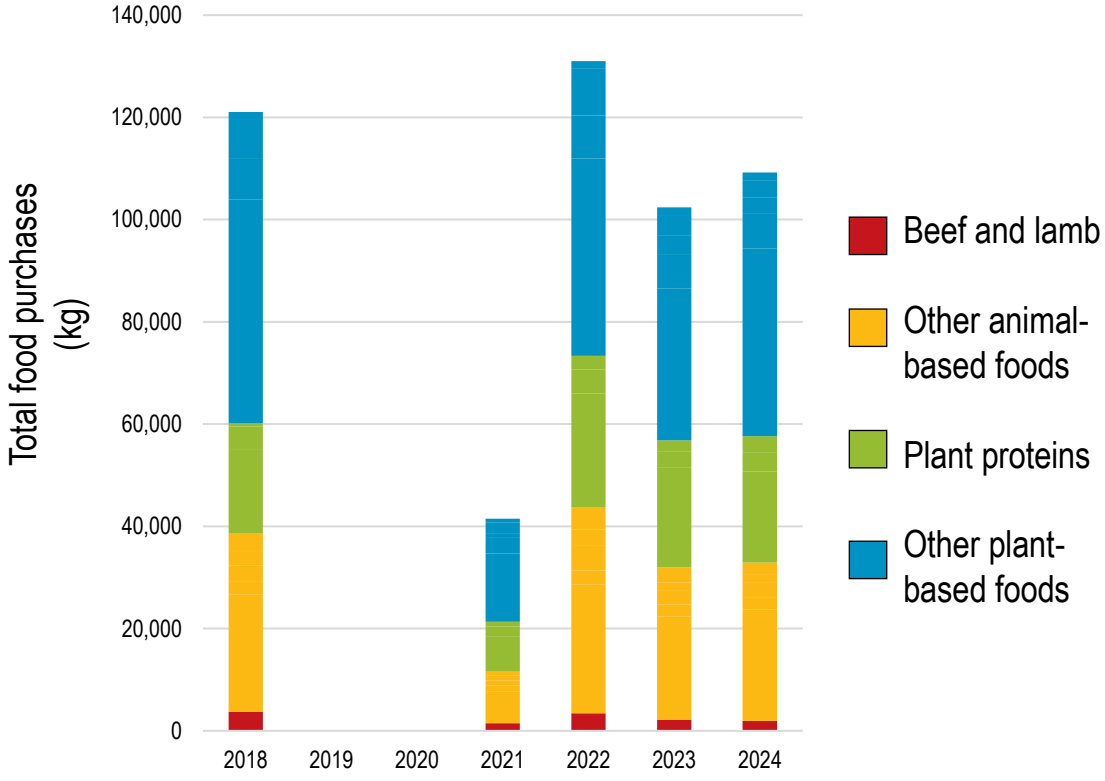
Copenhagen (Others): total food purchases (2018-24)



Food type	% change (2018-24)
Beef and lamb	-47.77%
Dairy	-5.27%
Pork	-5.66%
Poultry	-1.24%
Seafood	-47.21%
Eggs	-33.13%
Grains	+8.91%
Legumes/nuts/seeds	-16.77%
Plant-based milk subs.	+367.54%
Fruits & vegetables	-16.08%
Roots/tubers	-14.21%
Added sugars	+7.19%
Vegetable oils	-29.49%
Alcohol, stimulants, spices	+10.02%
Total	**-9.78%**

Source: Purchase data provided by member.

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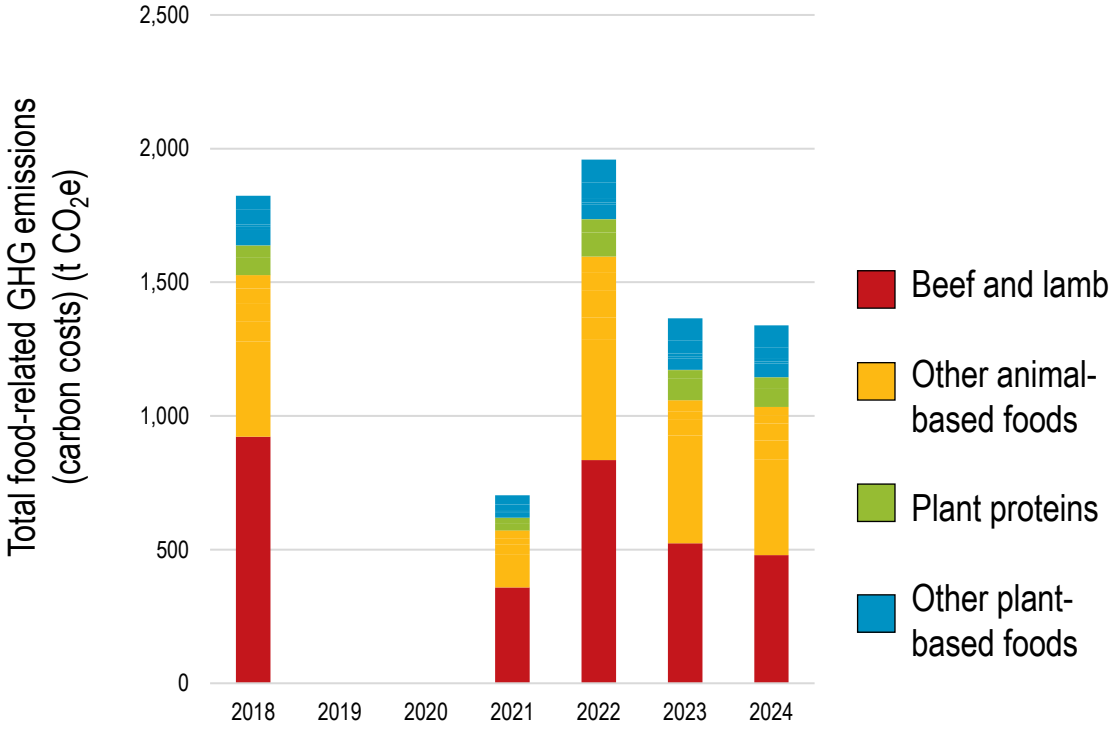
Copenhagen (Others): total food-related emissions (2018-24)

	% change (2018-24)
Emissions per kg	-18.61%



Source: Purchase data provided by member. Emission factors from Poore and Nemecek (2018) (agricultural supply chain) and Searchinger et al. (2018) (carbon opportunity costs).

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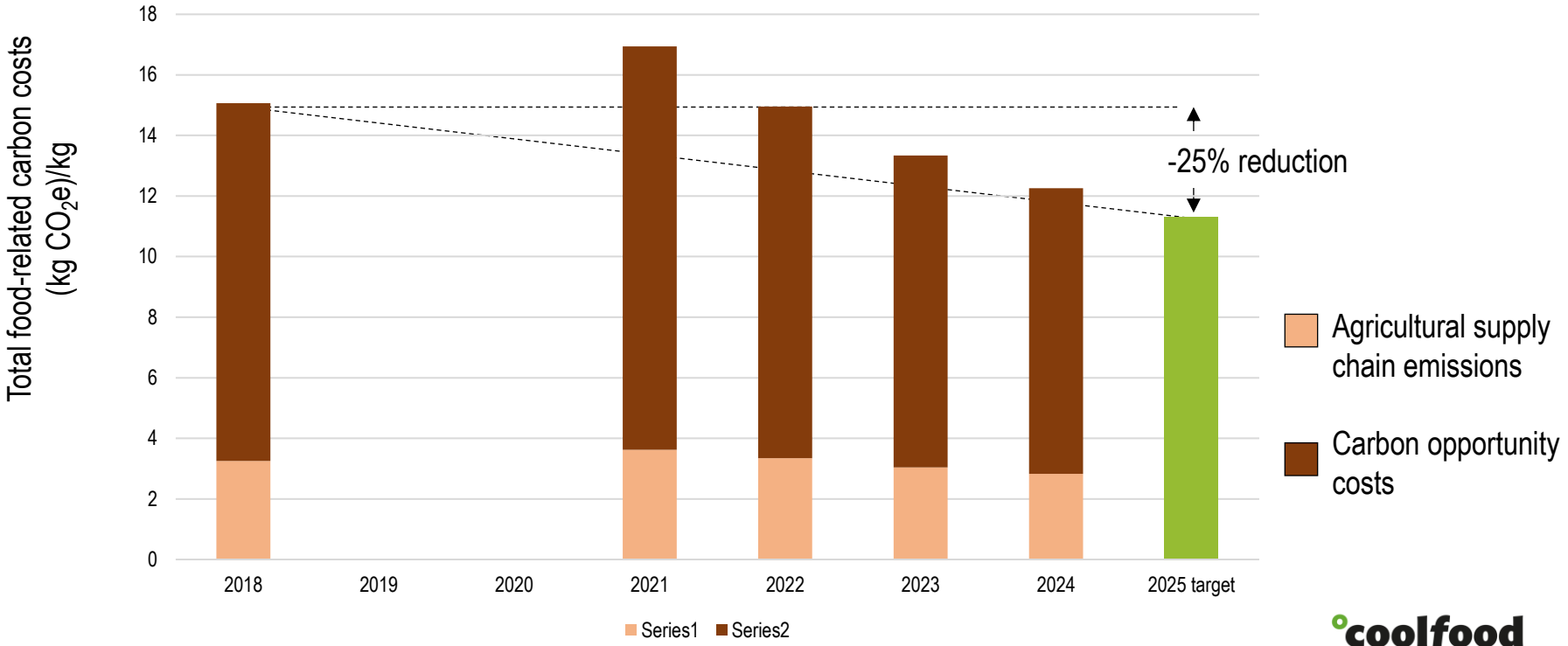
Copenhagen (Others): Progress against city target of 25% reduction in GHG emissions per kg food



Source: Emission factors from Poore and Nemecek (2018) (agricultural supply chain) and Searchinger et al. (2018) (carbon opportunity costs).

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