

Convegno



METANO E SISTEMI AGROALIMENTARI

QUALI SCELTE PER LA
RIDUZIONE DELLE
EMISSIONI CLIMALTERANTI

LUNEDÌ 10 NOVEMBRE 2025

ORE 09:30 - 13:00

Cascina Nascosta

Viale Emilio Alemagna 14, Milano

**Prodotti di origine animale e salute alimentare,
il costo sanitario dell'eccesso:
ridurre il gap tra consumi e assunzioni raccomandate**



**UNIVERSITÀ
DI PARMA**

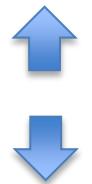
Beatrice Biasini

Unità di Nutrizione Umana, Dipartimento di Scienze degli Alimenti e del Farmaco
Università di Parma



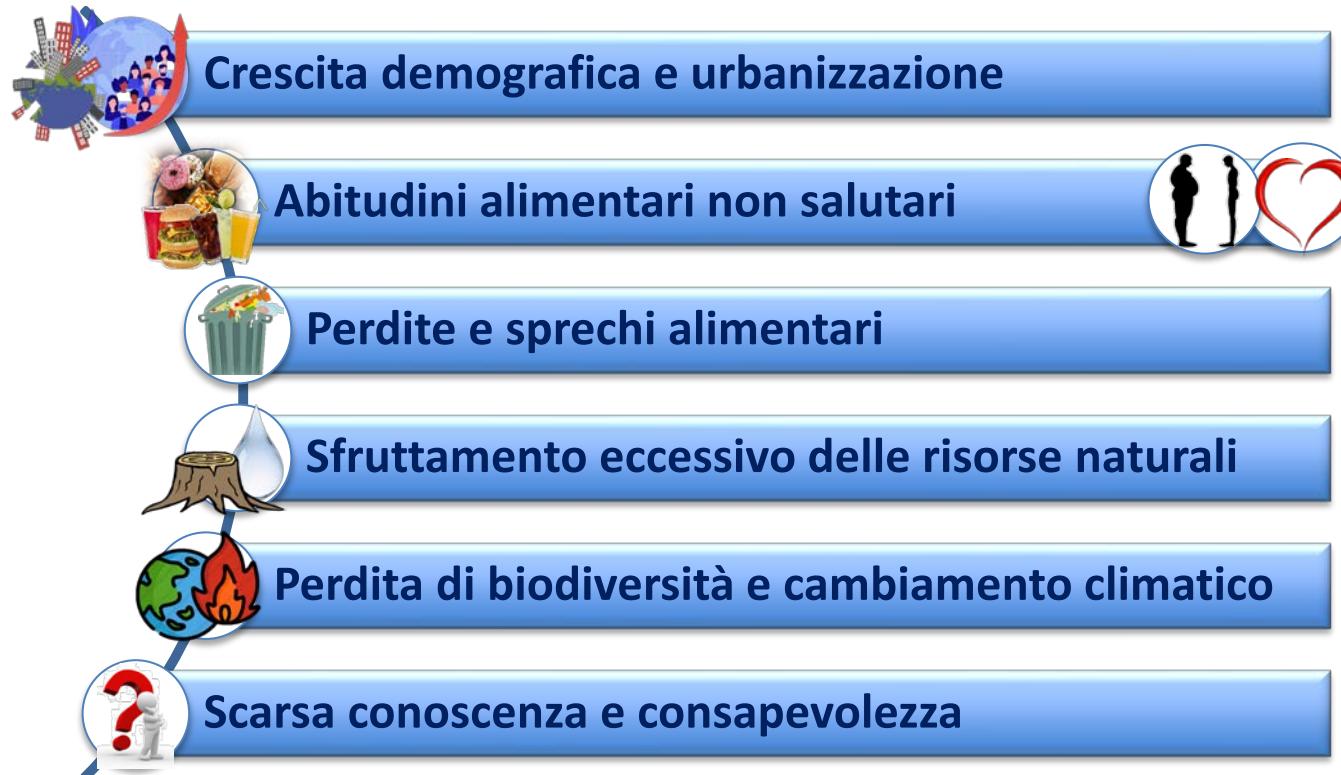
Impatto e sfide del sistema agroalimentare

Innovazione tecnologica:



Disponibilità e sicurezza alimentare

Fame, denutrizione, povertà e mortalità



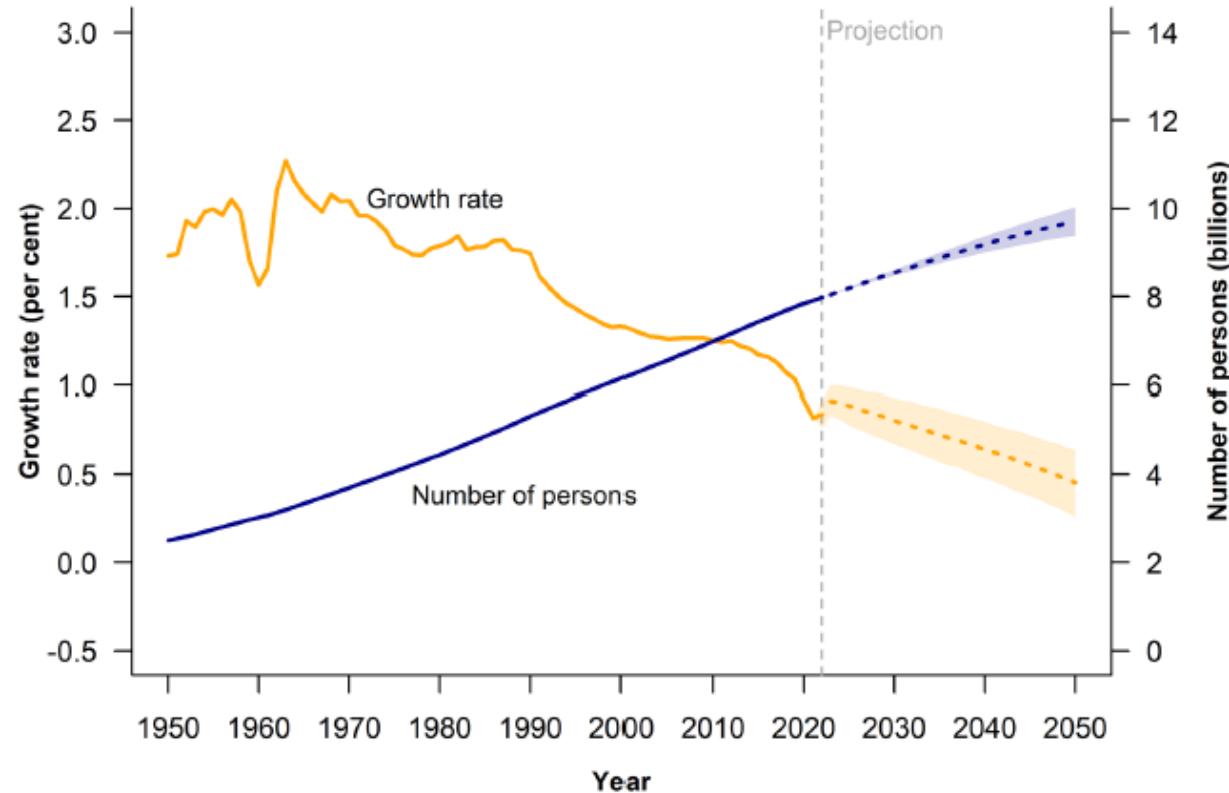
Crescita demografica e urbanizzazione



8 novembre 2025

Current World Population

8,257,043,625



Fonte: <https://www.worldometers.info/it/>

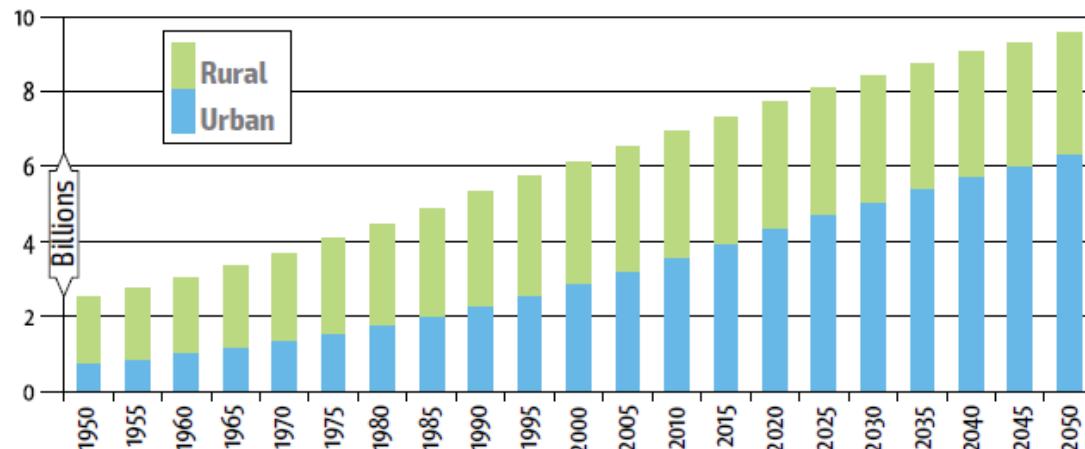
Fonte: United Nations Department of Economic and Social Affairs, Population Division, 2022.

Crescita demografica e urbanizzazione

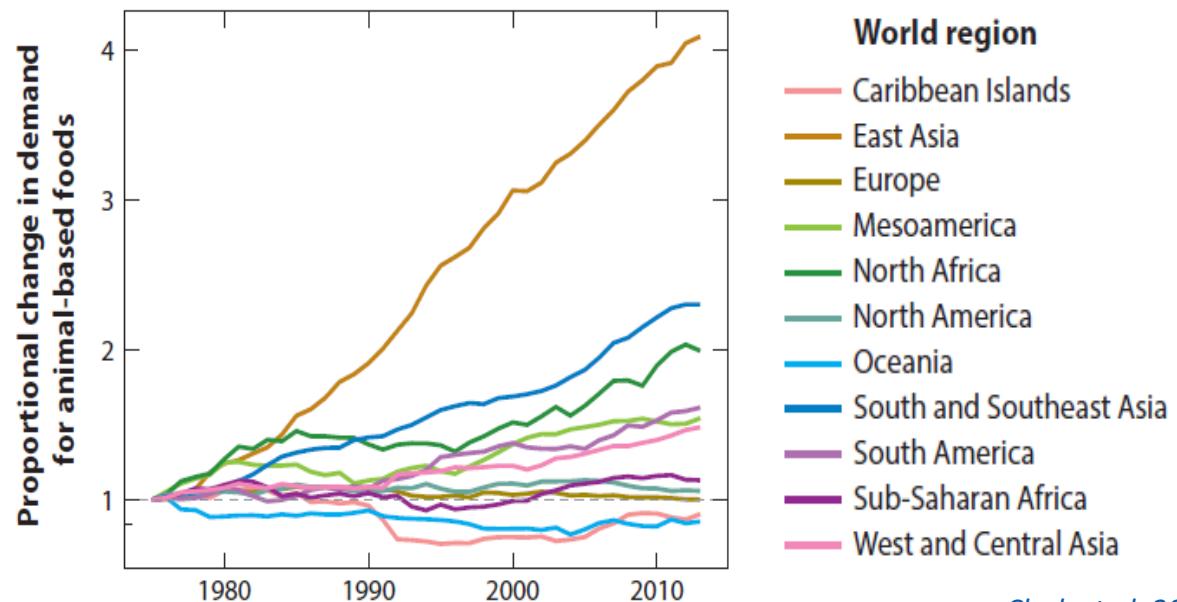


- La crescita demografica e l'urbanizzazione impattano sulle scelte di consumo e abitudini alimentari e contribuiscono a spostare l'occupazione all'interno dei sistemi alimentari.

Growth in global urban and rural populations to 2050



Source: UN, 2015.

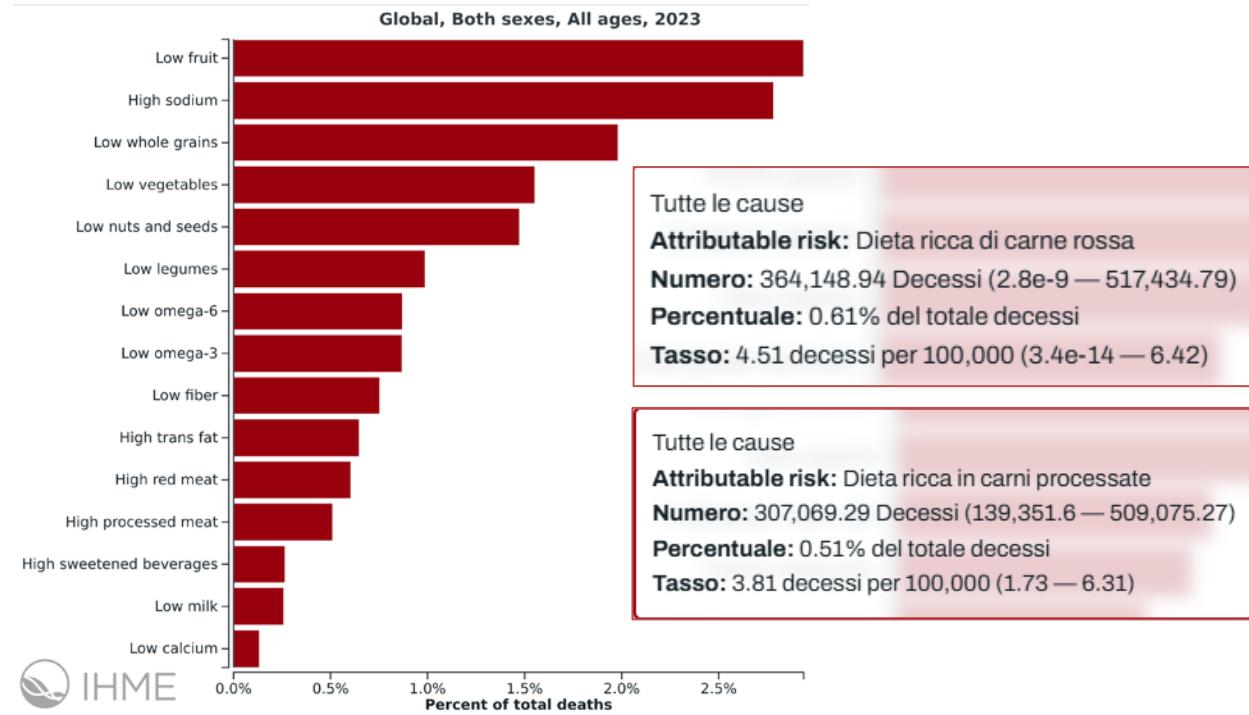
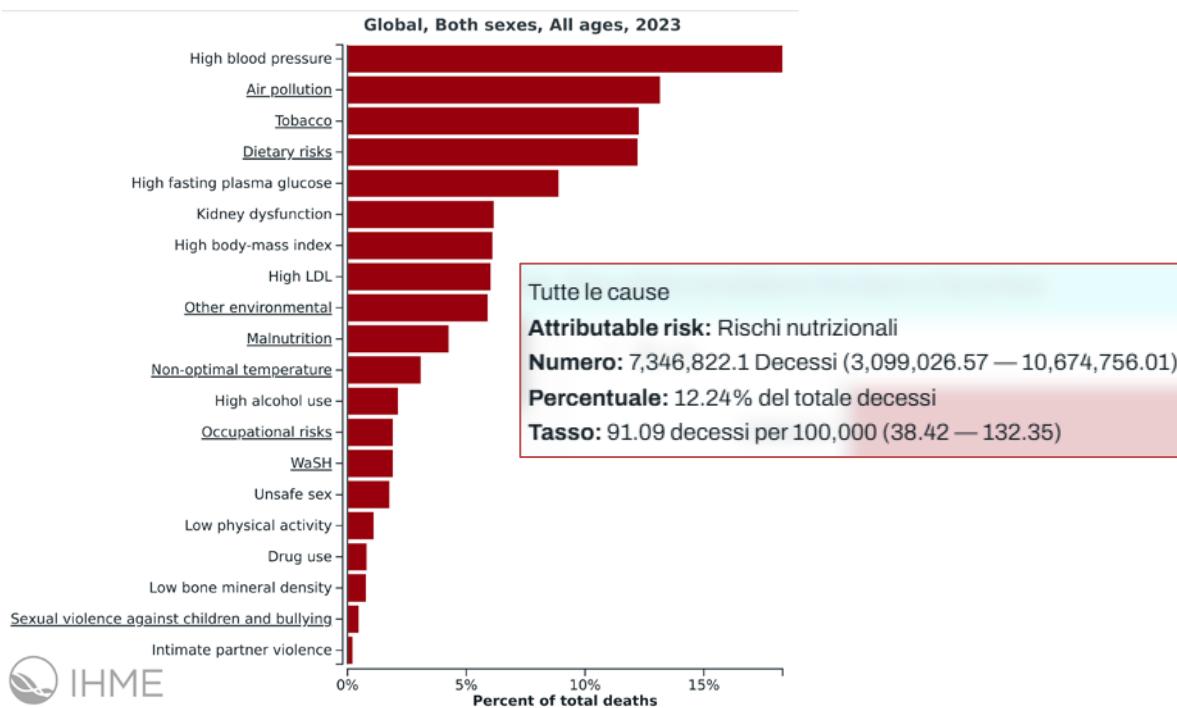


Clark et al, 2018

Abitudini alimentari non salutari



- Le diete inadeguate, non salutari, sono caratterizzate da un **basso apporto di frutta e verdura, cereali integrali, frutta secca e semi, fibre, latte, calcio, acidi grassi insaturi**; e da un **alto apporto di sodio, carne rossa, carne trasformata, bevande zuccherate, acidi grassi trans**.
- Tali diete costituiscono uno dei **principali fattori di rischio di morte e malattia** a livello mondiale.

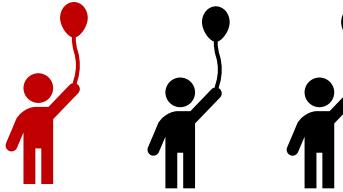
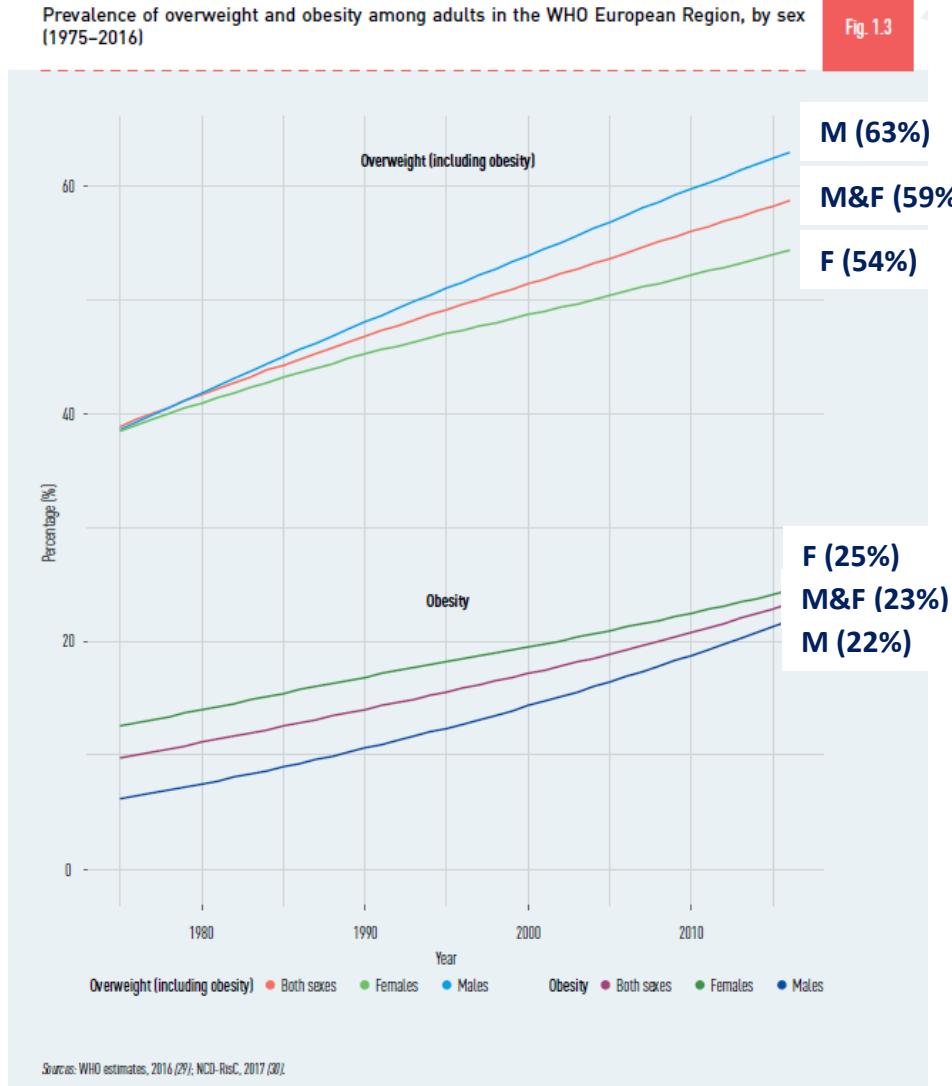


Malnutrizione per eccesso nel mondo e in Europa



Adulti nel mondo (2022):
43% in sovrappeso
16% con obesità

WHO, 2025



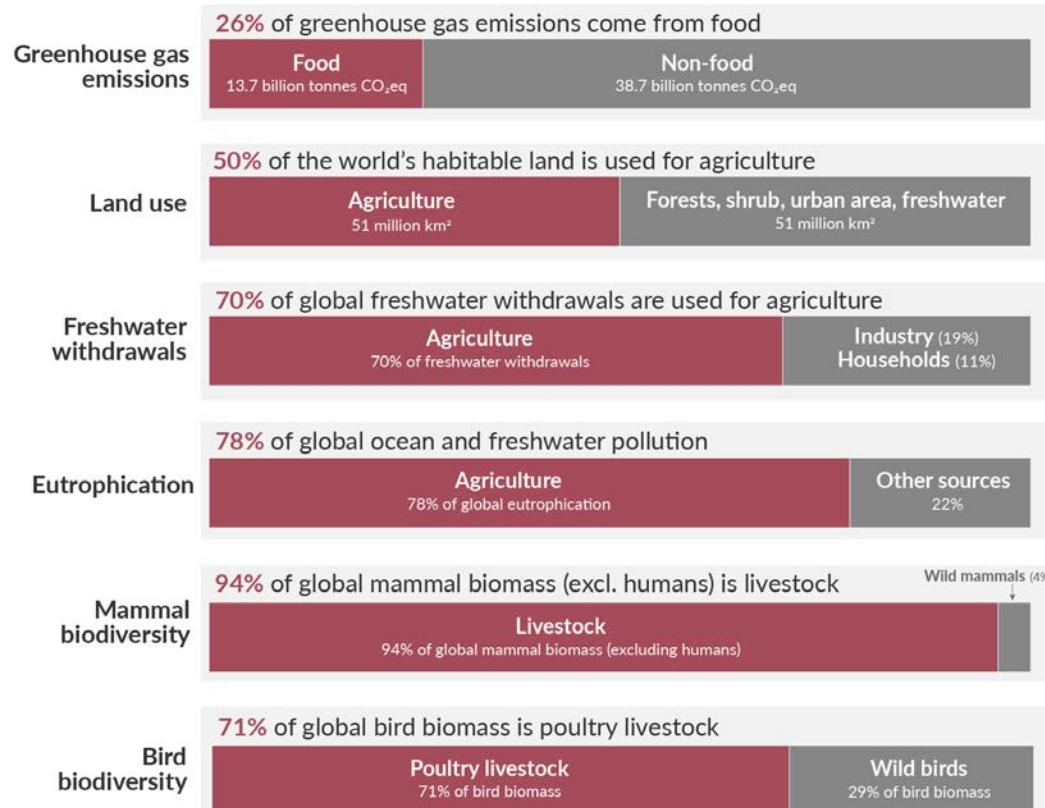
Regione EU (WHO)	Età	Sovrappeso e obesità (%)	Obesità (%)
M	5-9 anni	32,1	14,0
		26,6	9,1
		29,5	11,6
M&F	10-19 anni	26,7	8,6
		22,9	5,6
		24,9	7,1
F			

WHO Regional Office for Europe; 2022



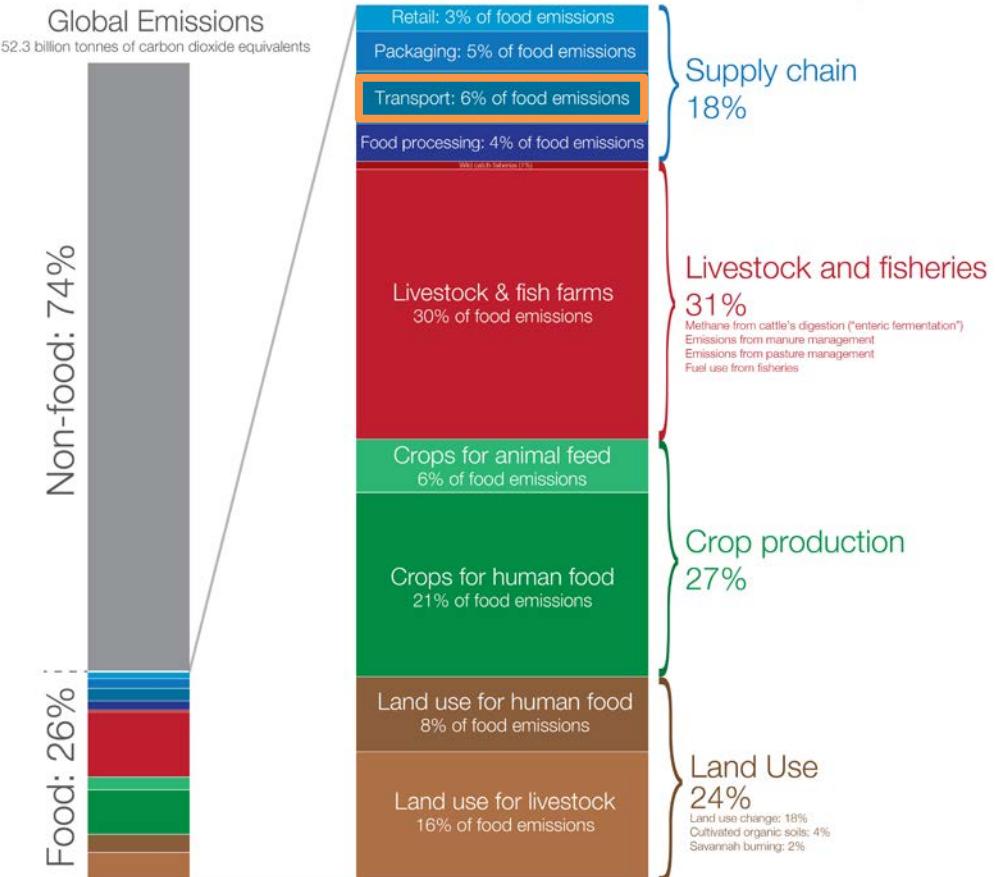
Sfruttamento delle risorse e cambiamento climatico

- Il settore agroalimentare, in primis l'**agricoltura**, contribuiscono al **cambiamento climatico, al degrado ambientale e alla perdita di biodiversità**.



Data sources: Poore & Nemecek (2018); UN FAO; UN AQUASTAT; Bar-On et al. (2018).
OurWorldinData.org – Research and data to make progress against the world's largest problems.

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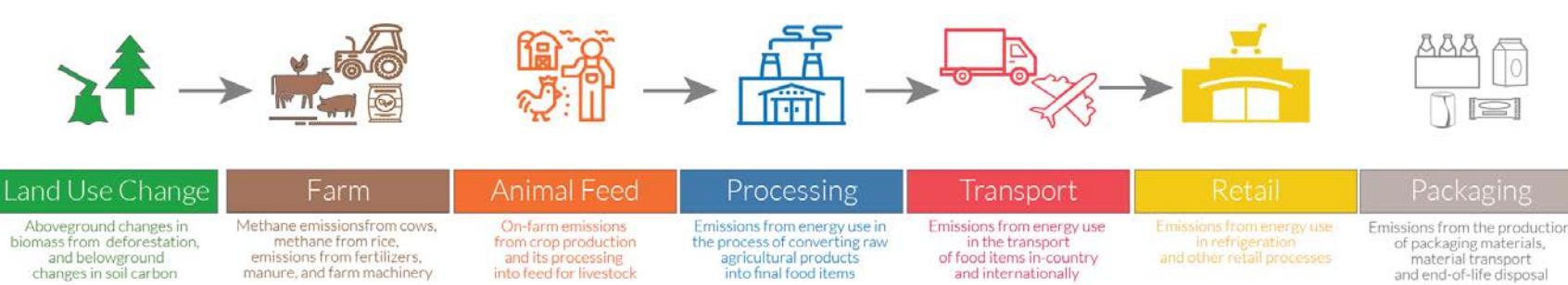
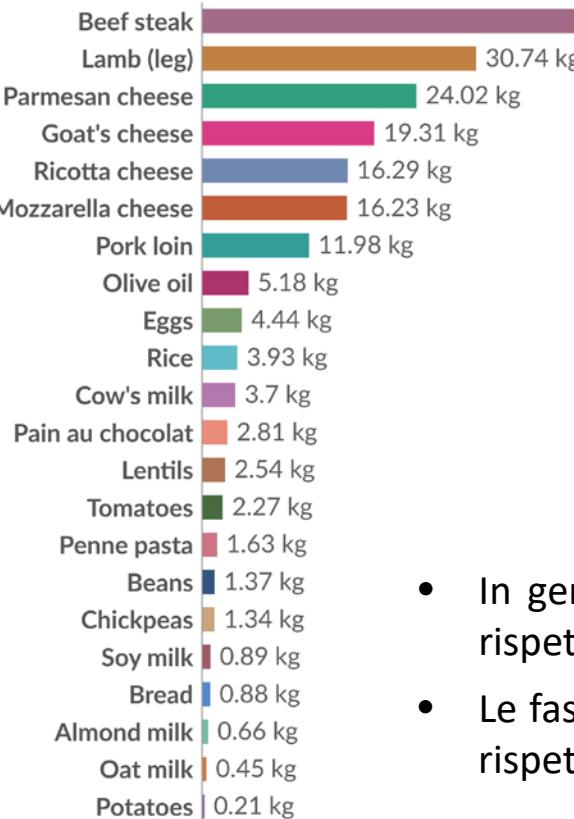


Impronta carbonica degli alimenti

Greenhouse gas emissions per kilogram of food

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Emissions are measured in carbon dioxide equivalents (CO₂eq). This means non-CO₂ gases are weighted by the amount of warming they cause over a 100-year timescale.



- In generale, le emissioni di gas serra associate ai prodotti a base vegetale sono 10-50 volte inferiori rispetto a quelle associate ai prodotti a base animale.
- Le fasi intermedie delle filiere alimentari contribuiscono all'impronta carbonica in misura molto minore rispetto alla fase di produzione.

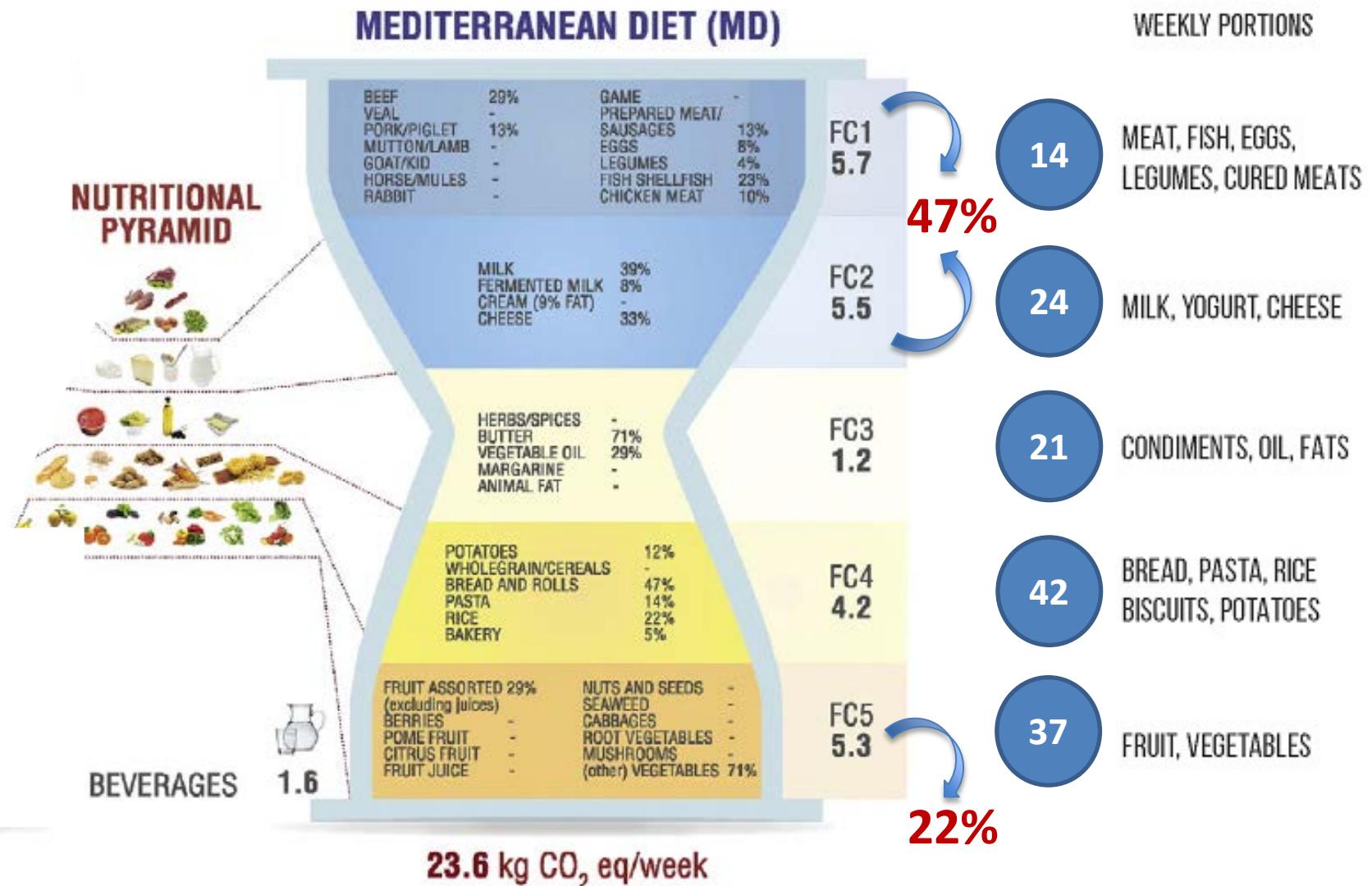
Data source: Michael Clark et al (2022). Estimating the environmental impacts of 57,000 food products. PNAS.

CC BY

Hannah Ritchie and Max Roser (2020) - "Environmental Impacts of Food Production". Published online at OurWorldInData.org. Retrieved from: <https://ourworldindata.org/environmental-impacts-of-food> [Online Resource]

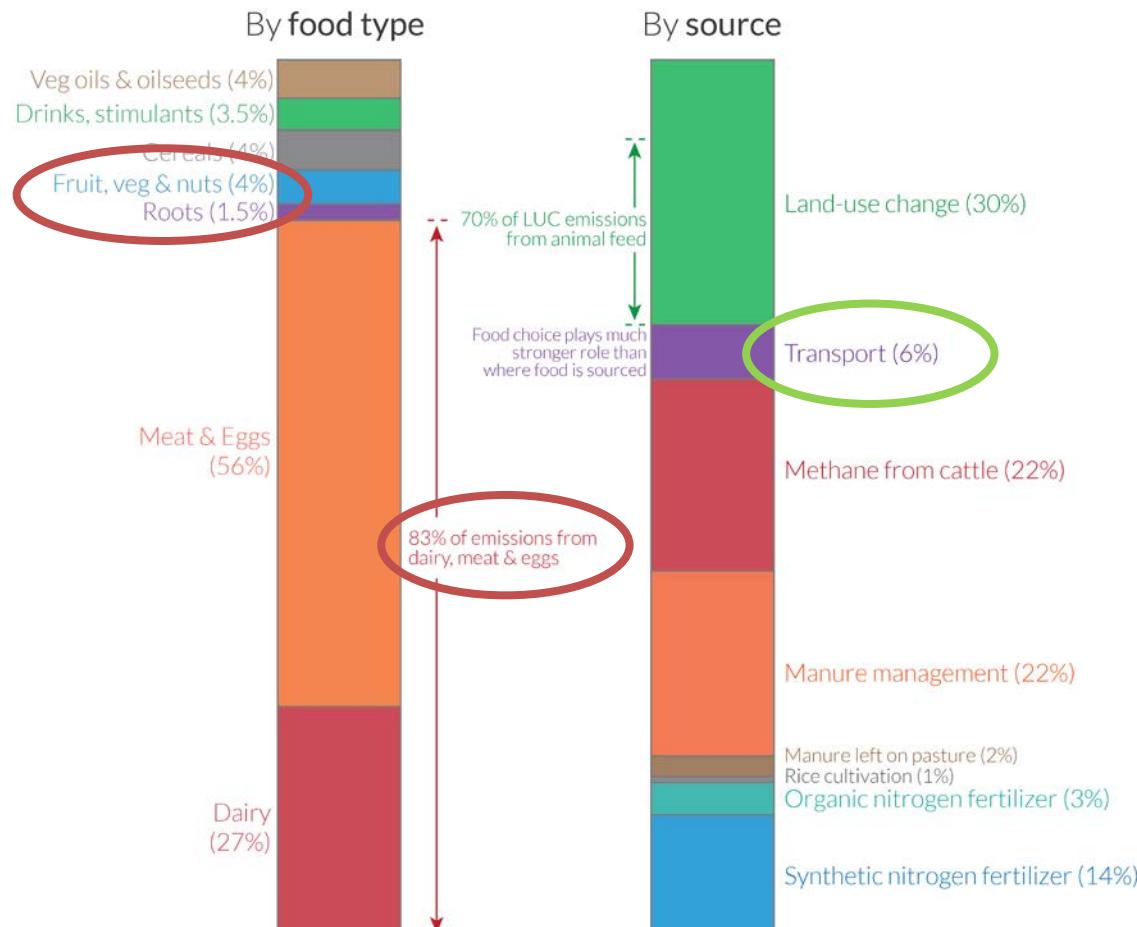


La clessidra alimentare



Ulaszewska et al, 2017

Impronta carbonica delle abitudini alimentari in Europa



Data source: Sandström et al. (2018). The role of trade in the greenhouse gas footprints of EU diets. OurWorldinData.org – Research and data to make progress against the world's largest problems.

Licensed under CC-BY by the author Hannah Ritchie.

Data source: total and per capita food supply in 28EU countries, 2009-2011 (FAO).

Fish and other seafood, offal, and animal fats were excluded from the analysis due to a lack of data.

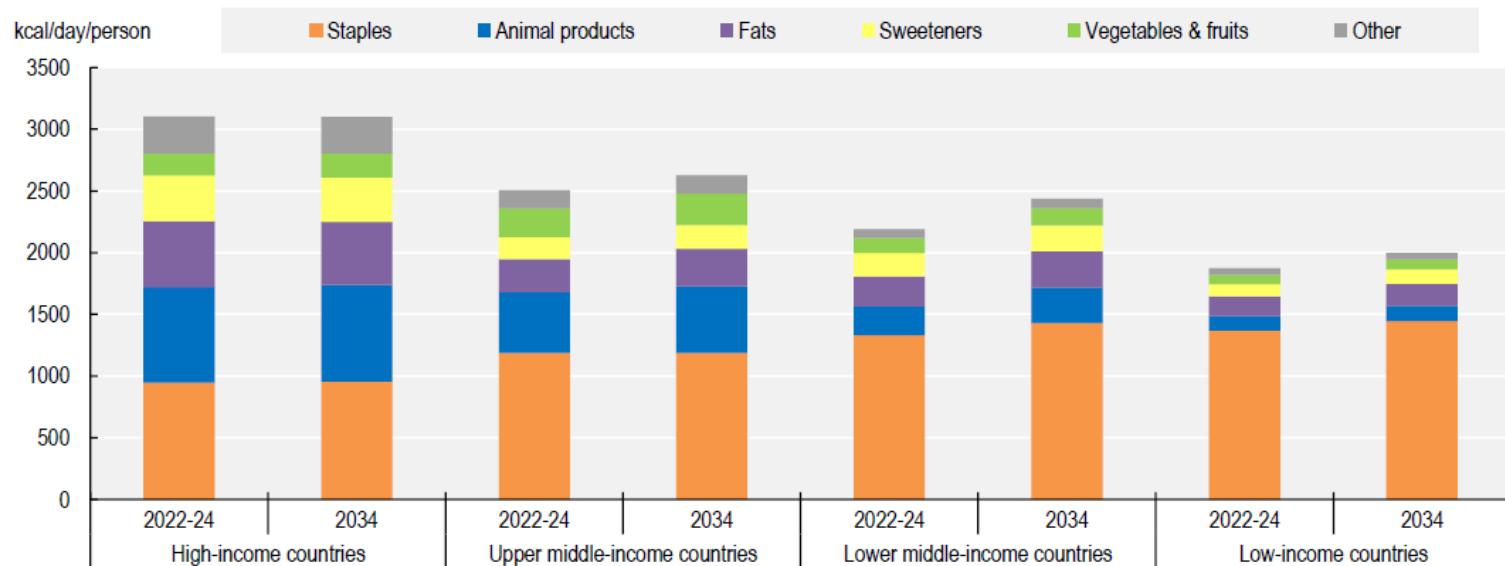
Sandström et al., 2018.

Consumo alimentare



- Il **contributo dei prodotti di origine animale** all'assunzione calorica si reduce con il diminuire del livello di reddito dei paesi, al contrario aumenta il contributo degli alimenti base (cereali, tuberi, legumi).

Figure 1.5. Contribution of food groups to total daily per capita caloric food intake



Note: Estimates are based on historical food supply time series from the FAOSTAT Food Balance Sheets database which are extended with the Outlook database and adjusted to account for estimated distributional and household wastes. Products not covered in the Outlook are extended by trends. Staples include cereals, roots and tubers and pulses. Animal products include meat, dairy products (excluding butter), eggs and fish. Fats include butter and vegetable oil. Sweeteners include sugar and HFCS. The category 'Other' includes other crop and animal products.

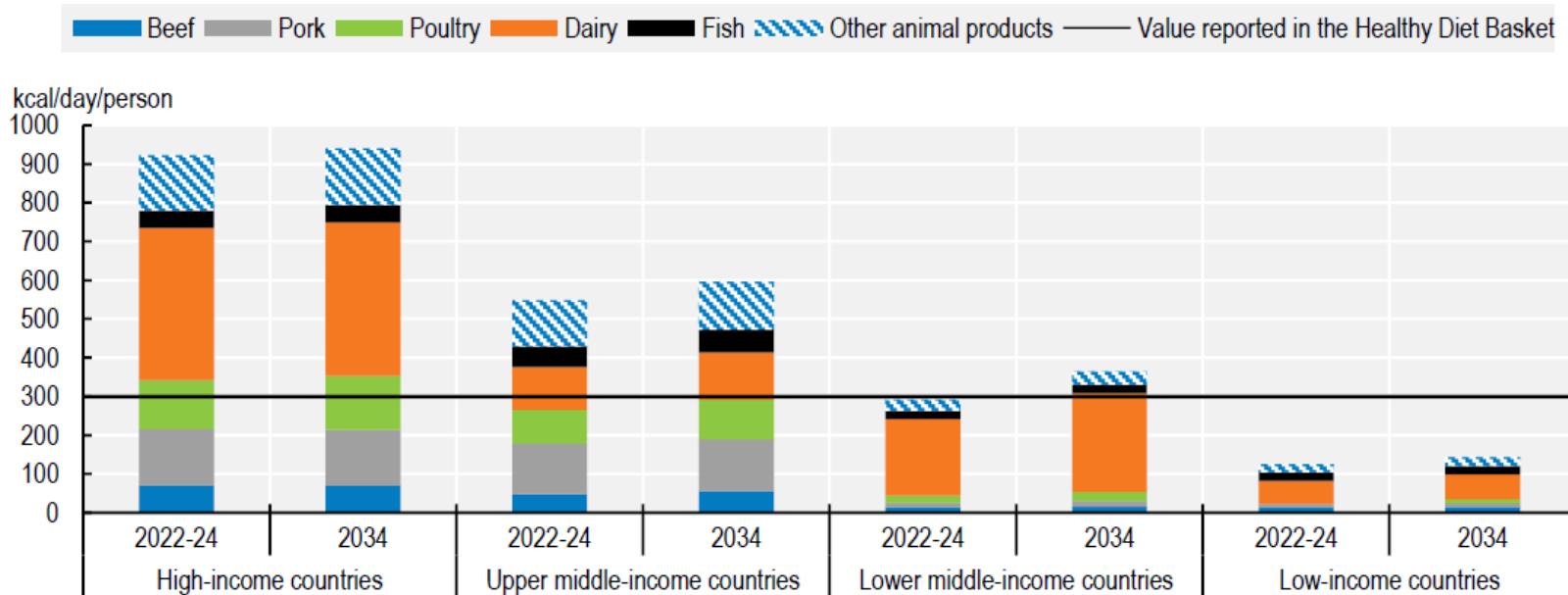
Source: OECD/FAO (2025), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://data-explorer.oecd.org/s/1hc>.

Consumo di prodotti a base animale



- **Carne:** si stima che la produzione globale sarà trainata da Asia e America Latina.
- **Latte e derivati:** consumo globale trainato da India e Pakistan.
- **Latte e derivati freschi:** consumo in calo in UE e nel Nord America.

Figure 1.6. Animal source foods in total food intake



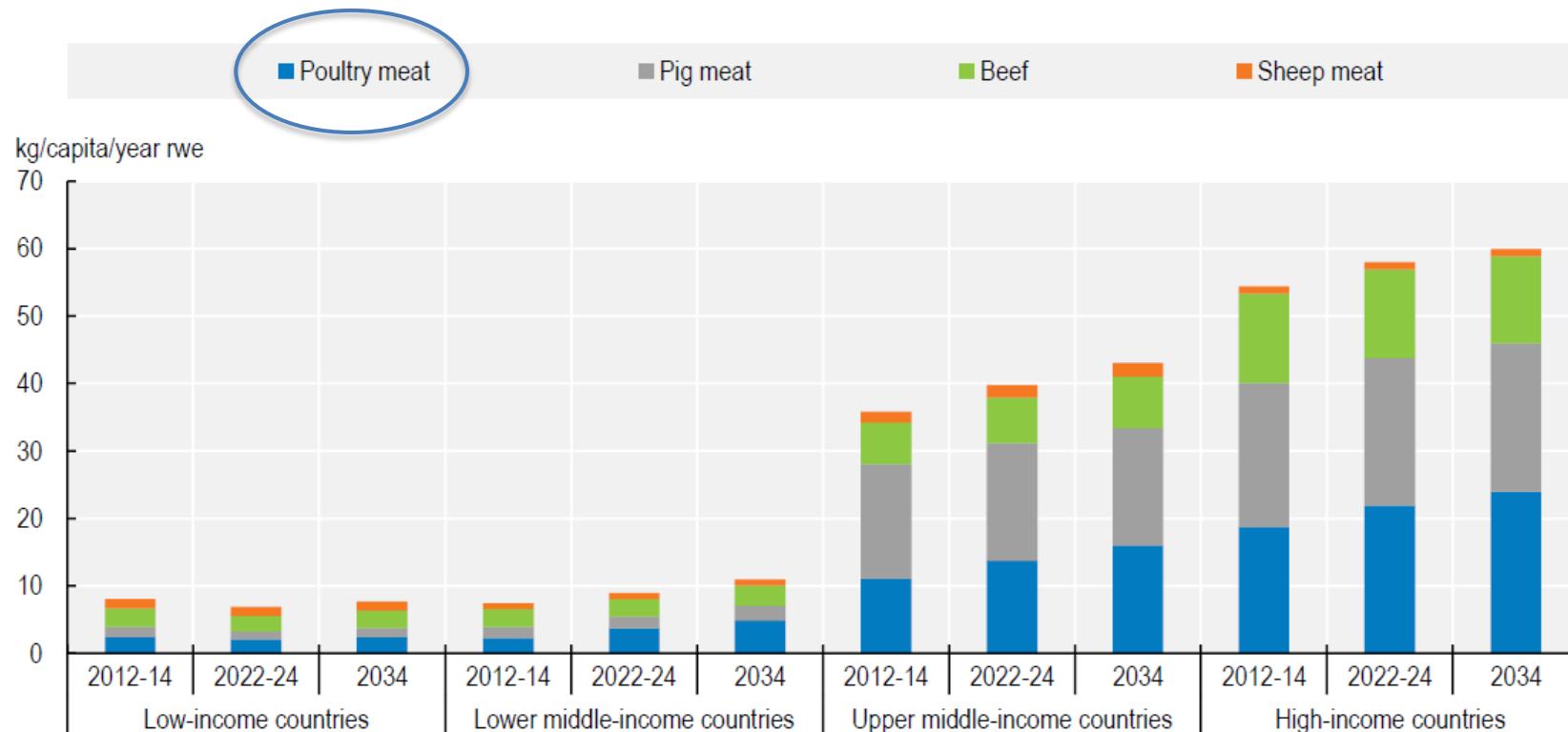
Note: Estimates are based on historical time series from the FAOSTAT Food Balance Sheets database which are extended with the Outlook database. The category 'Other animal products' includes sheep meat, eggs and other products not covered in the Outlook are extrapolated by trends.

Source: OECD/FAO (2025), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://data-explorer.oecd.org/s/1hc>.

Consumo di carne

- **Proteine da pollame:** entro il 2034 costituiranno il 45% dell'assunzione totale di proteine derivanti da carne (costi ridotti, buon profilo nutrizionale, e limitato impatto ambientale).

Figure 5.1. Per capita meat consumption by income group and meat type



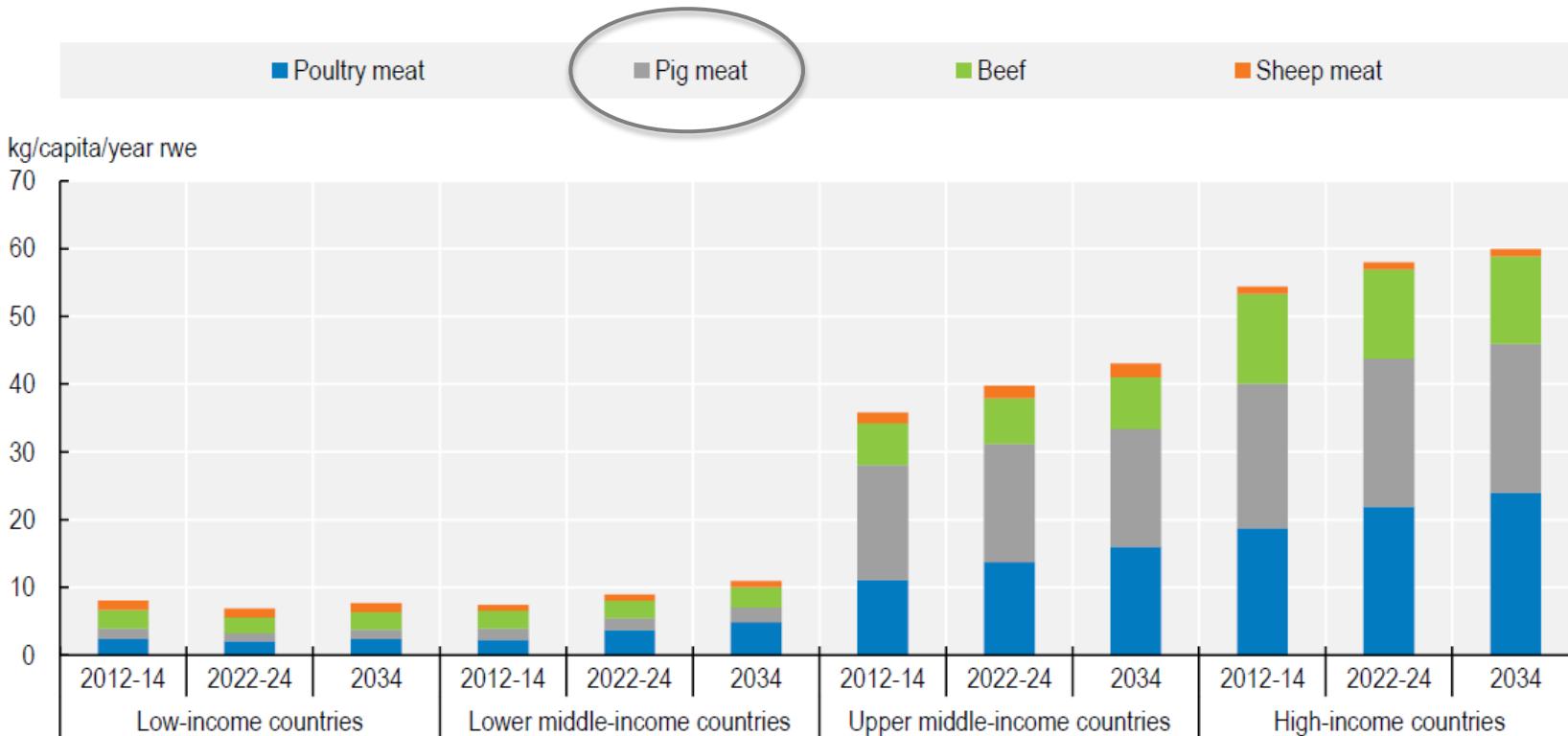
Source: OECD/FAO (2025), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://data-explorer.oecd.org/s/1hc>.

Consumo di carne



- Consumo di **carne suina**: aumenterà, eccetto in UE, Svizzera, Cina, Giappone.
- Il consumo pro capite diminuirà del 4% nei Paesi ad alto reddito, mentre l'aumento più elevato si avrà in America Latina.

Figure 5.1. Per capita meat consumption by income group and meat type



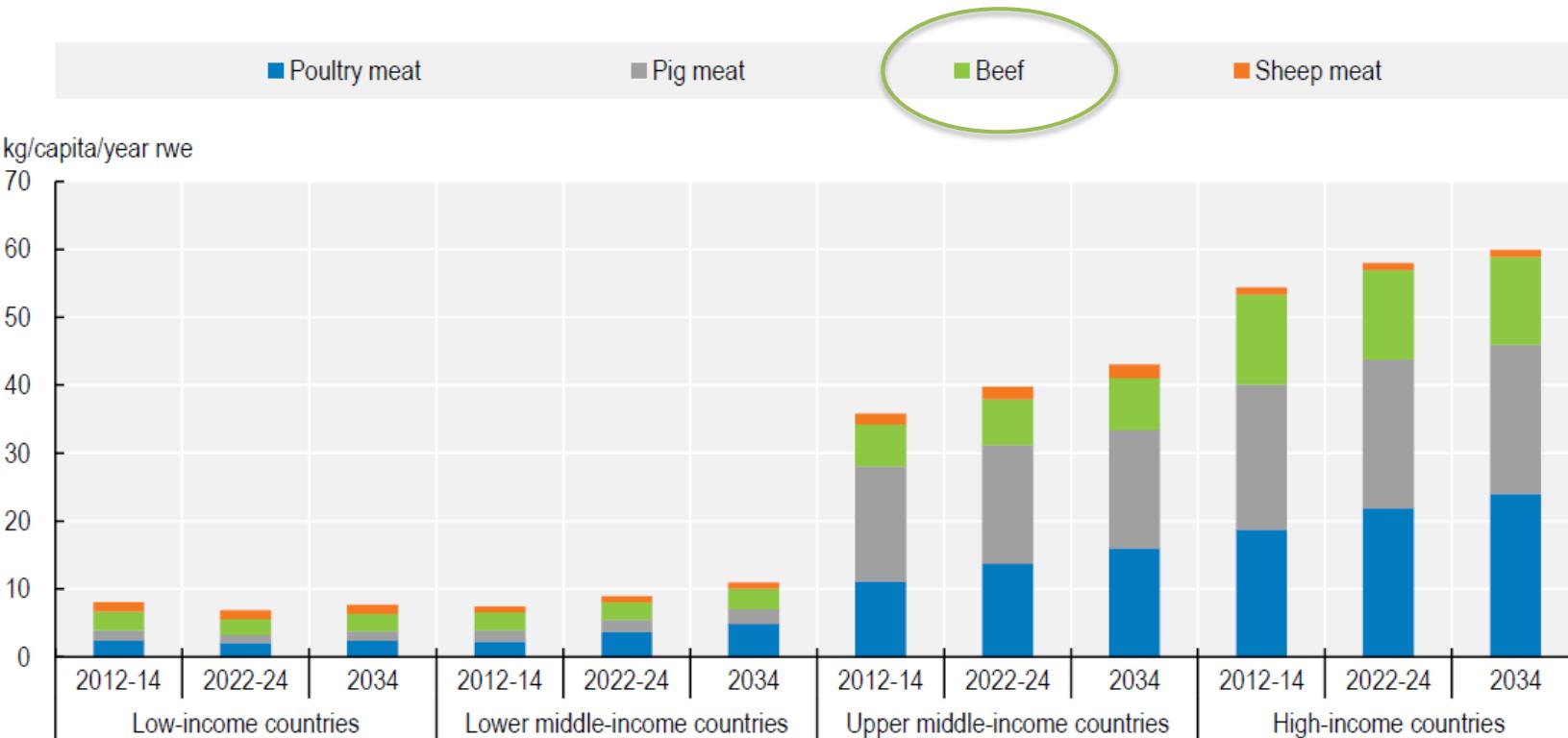
Source: OECD/FAO (2025), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://data-explorer.oecd.org/s/1hc>.

Consumo di carne



- Consumo di **carne bovina**: si prevede rimanga stabile intorno ai 6 kg/pro capite/anno
- Diminuzione prevista in UE, Nord America, Oceania
- Aumento previsto in Medio Oriente e Asia (reddito più elevato)

Figure 5.1. Per capita meat consumption by income group and meat type



Source: OECD/FAO (2025), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://data-explorer.oecd.org/s/1hc>.

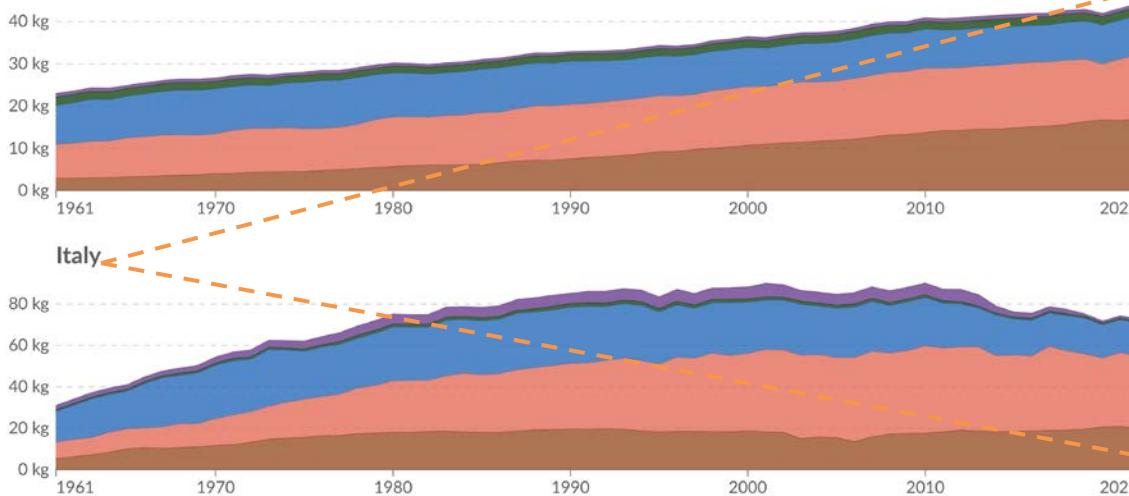
Consumo di carne in Italia

Per capita meat consumption by type, 1961 to 2022

Per capita meat consumption is broken down by types of meat, and is measured in kilograms per person per year.

Poultry Pigmeat Beef and buffalo Sheep and goat Other meats

World



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1961

in kilograms per year per capita

Other meats	2.07 kg
Sheep and goat	0.82 kg
Beef and buffalo	14.87 kg
Pigmeat	7.89 kg
Poultry	5.38 kg
Total	31.02 kg

2022

in kilograms per year per capita

Other meats	1.21 kg
Sheep and goat	0.85 kg
Beef and buffalo	16.06 kg
Pigmeat	34.62 kg
Poultry	20.11 kg
Total	72.85 kg

108%
439%
374%
235%

Data source: Food and Agriculture Organization of the United Nations (2024)

OurWorldinData.org/meat-production | CC BY

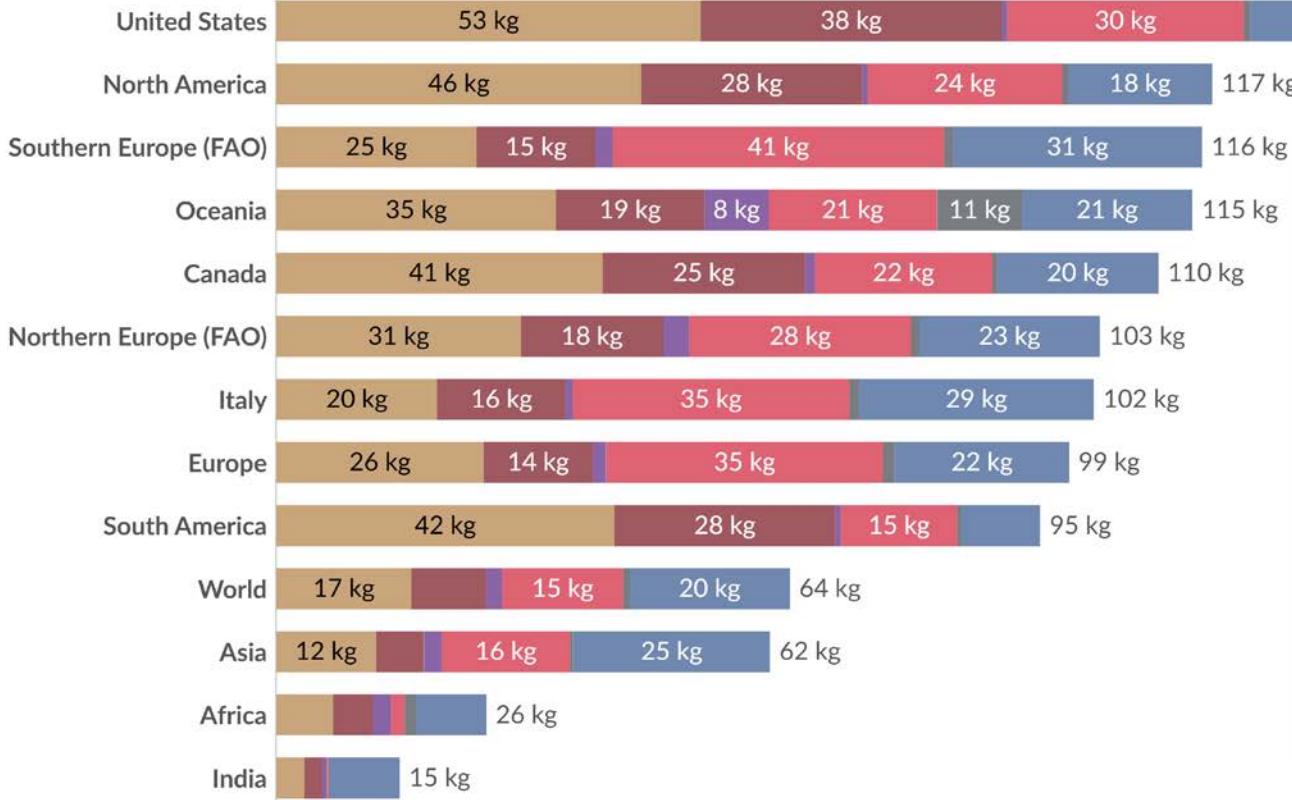
Note: Data does not include fish and seafood. Figures show meat supply and do not correct for waste at the household level and, so they may not directly reflect the quantity of food consumed by a given individual.

Consumo di carne in Italia

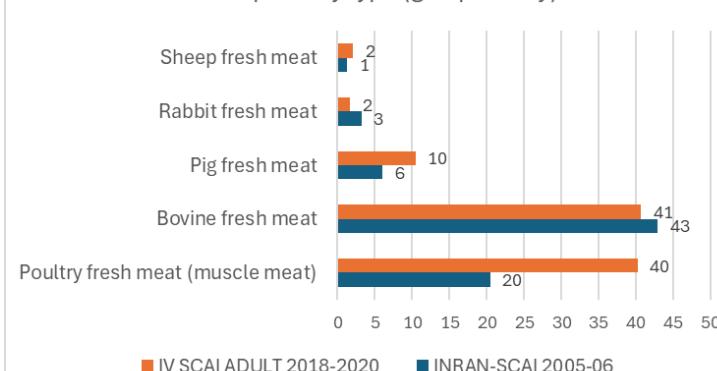
Per capita meat consumption by type, 2022

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Poultry Beef and buffalo Sheep and goat Pork Other meats Fish and seafood



Meat consumption by type (g/capita/day) - Adults



2022
in kilograms per year per capita

Other meats	1.21 kg
Sheep and goat	0.85 kg
Beef and buffalo	16.06 kg
Pigmeat	34.62 kg
Poultry	20.11 kg
Total	72.85 kg

141 g/d; ~ 10 p/w

55 g/d; ~ 4 p/w

200 g/d; 14 p/w

Data source: Food and Agriculture Organization of the United Nations (2024)

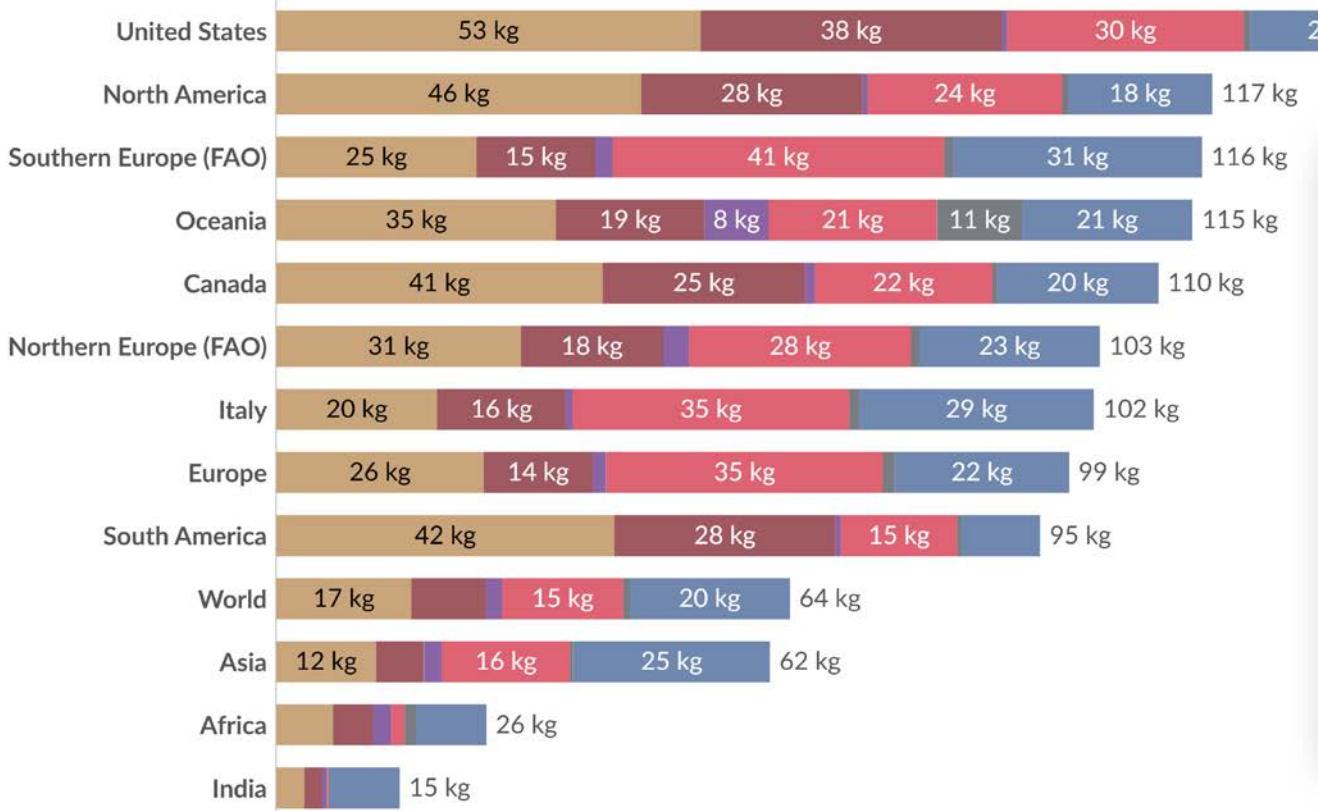
OurWorldInData.org/meat-production | CC BY

Note: Data refers to meat 'available for consumption'. Actual consumption may be lower after correction for food wastage.

Consumo di carne in Italia

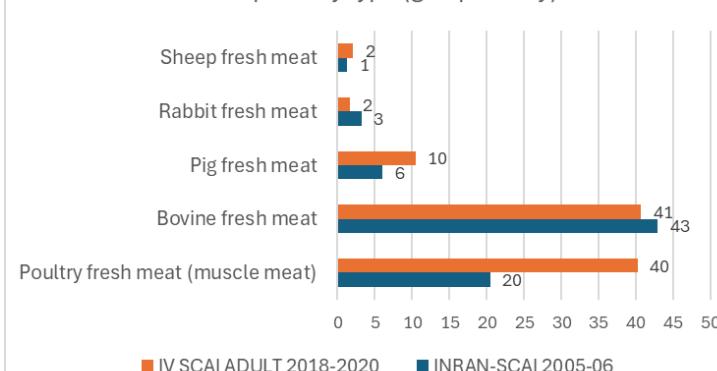
Per capita meat consumption by type, 2022

Poultry Beef and buffalo Sheep and goat Pork Other meats Fish and seafood



Our World
in Data

Meat consumption by type (g/capita/day) - Adults



2022
in kilograms per year per capita

Other meats	1.21 kg
Sheep and goat	0.85 kg
Beef and buffalo	16.06 kg
Pigmeat	34.62 kg
Poultry	20.11 kg
Total	72.85 kg

46 g/d; ~3 p/w

55 g/d; ~4 p/w

200 g/d; 14 p/w

Data source: Food and Agriculture Organization of the United Nations (2024)

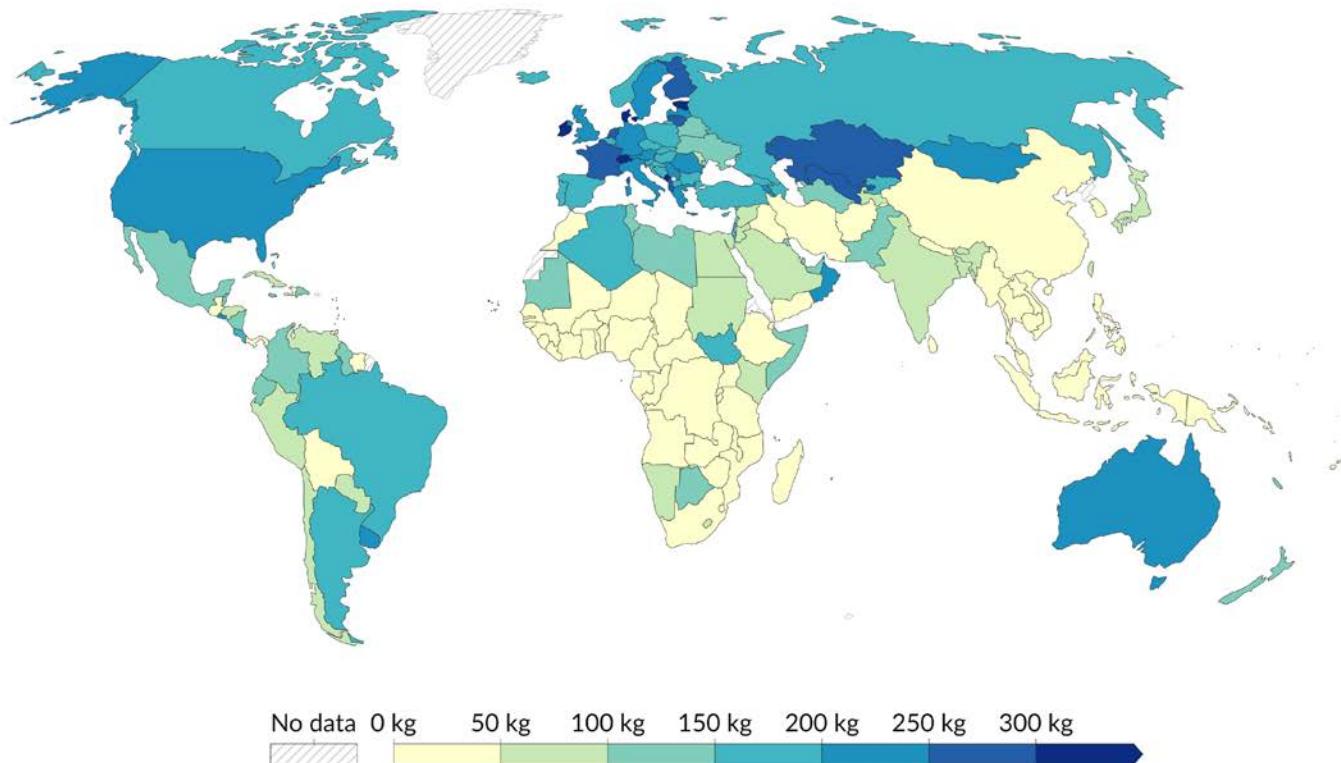
OurWorldinData.org/meat-production | CC BY

Note: Data refers to meat 'available for consumption'. Actual consumption may be lower after correction for food wastage.

Consumo di latte e derivati

Milk supply per person, 2022

Average per capita milk supply, measured in kilograms per person per year. This includes the milk equivalents of dairy products made from milk ingredients, but excludes butter.



Data source: Food and Agriculture Organization of the United Nations (2024)

Note: Data is based on per capita food supply at the consumer level, but does not account for food waste at the consumer level.

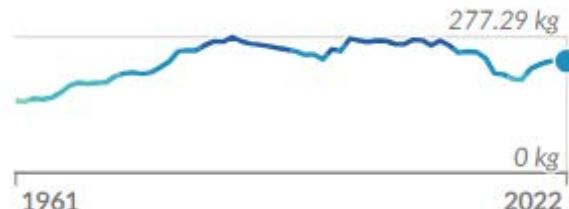
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624 g/d

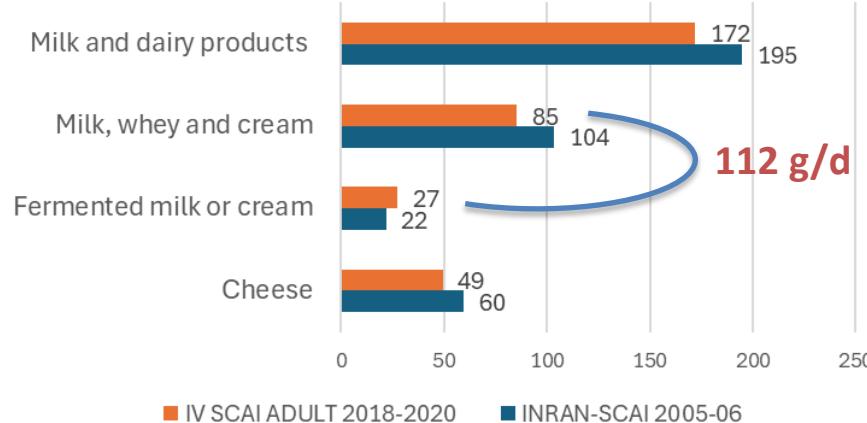
Italy
2022

Per capita consumption of milk,
excluding butter (kilograms per year per
capita)

227.93 kg



Milk and dairy consumption (g/capita/day) - Adults

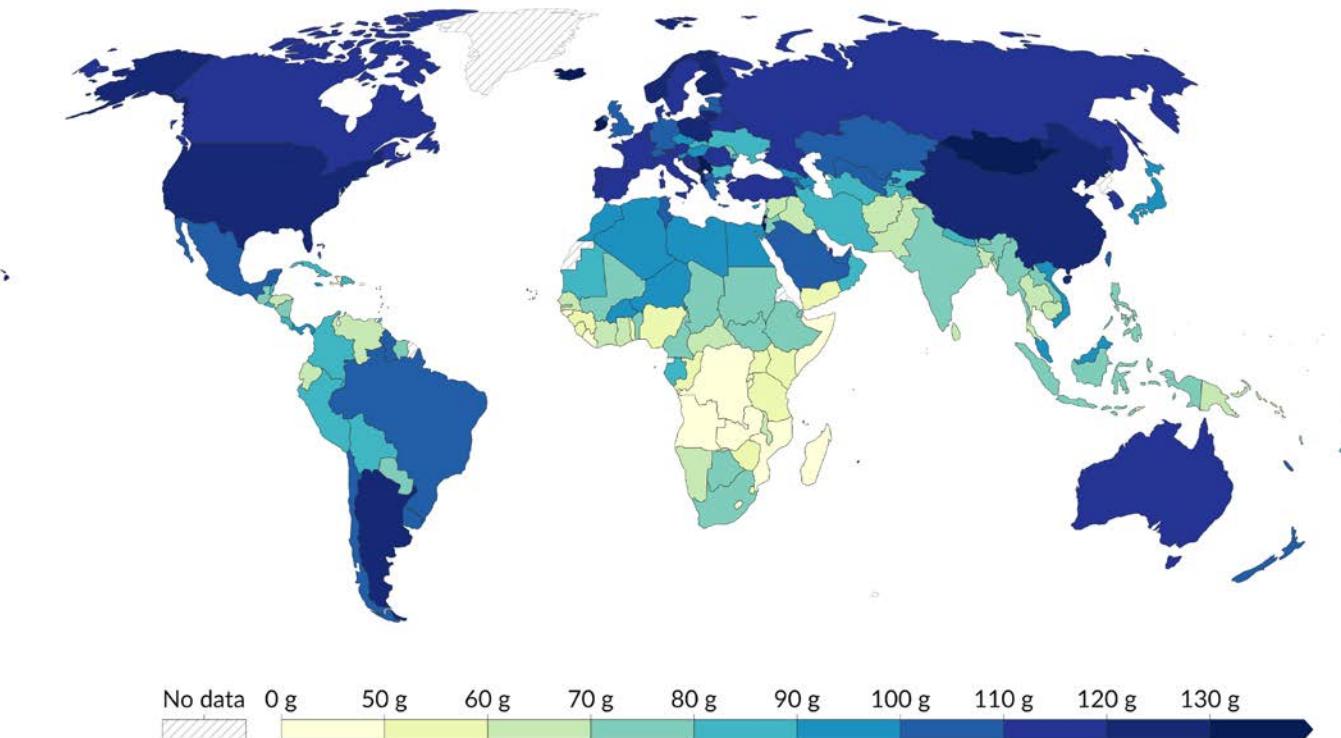


Consumo proteico

Daily per capita protein supply, 2022

Average daily per capita protein supply, measured in grams of total protein per day.

Our World
in Data



Data source: Food and Agriculture Organization of the United Nations (2024)

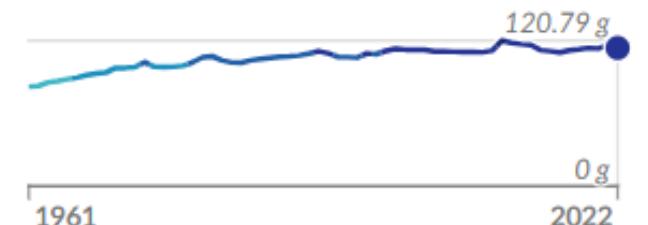
Note: Data measures the availability delivered to households but does not necessarily indicate the quantity of protein actually consumed (food may be wasted at the consumer level).

OurWorldinData.org/food-supply | CC BY

Italy
2022

Daily protein supply (grams of protein per day per capita)

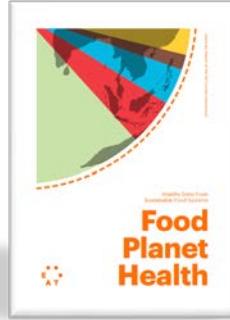
114.78 g



PRI proteine pop.
adulta in Italia:
0,9 g/kg peso

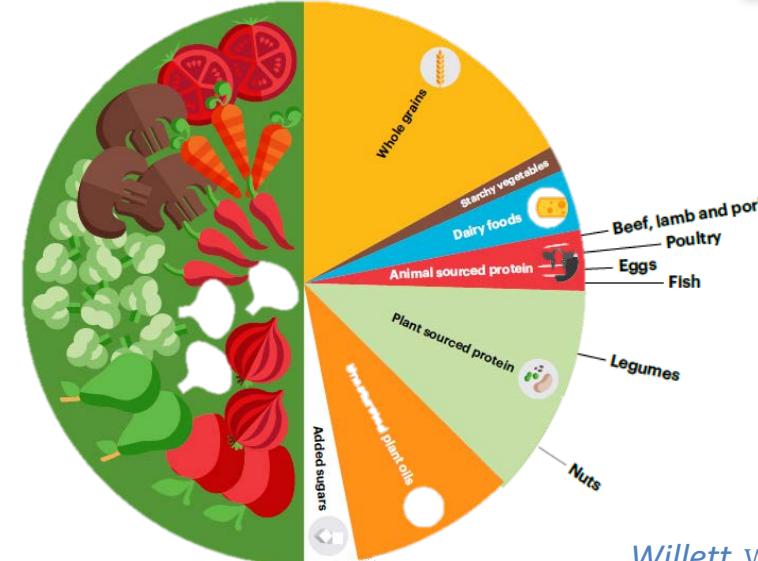
63 g
(uomo medio di 70 kg, 2000 kcal)

The Planetary Health Diet (PHD)



- Promuove la salute e può essere applicata a livello globale per diverse popolazioni e diversi contesti, considerando al contempo le differenze culturali e regionali.
- È a base vegetale: cereali integrali, frutta, verdura, noci e legumi sono i principali costituenti della dieta a cui si aggiungono piccole o moderate quantità di pesce, latticini e carne.
- Si basa interamente sugli effetti delle diverse diete sulla salute umana, non su criteri ambientali.

Rockström et al, 2025



Willett, W, et al., 2019



The Planetary Health Diet (PHD)

Most foods are assumed to be unprocessed or minimally processed. At the individual level, the optimal energy intake to maintain a healthy weight in adults and growth in children depends on body size, level of physical activity, and physiological status (eg, pregnancy or lactation in women). The targets, ranges, and options in this flexitarian version of the planetary health diet are intended to provide flexibility within a specific energy intake, with intake of animal-sourced foods not to exceed approximately two servings per day, with one being dairy (250 g milk or milk equivalents) and one being non-dairy (eg, 75–100 g from fish, poultry, red meat, or eggs). Various versions of this dietary pattern, including specific vegetarian, vegan, or pescatarian diets, those of different food cultures, and with different total energy intakes are described in appendix 1 (pp 24–25). *Mostly whole, unprocessed, or minimally processed foods; when processed, added sugar, refined starch, saturated fat, and sodium should be minimal. †Whole-grain rice, wheat, maize, oats, millets, sorghum, and other whole grains are all interchangeable and replace refined grains. ‡Examples include potatoes, yams, cassava, sweet potatoes, and taro. §Combinations of dark green, red and orange, and other vegetables, including aquatic plants. ¶All fruits and berries. ||A variety of legumes is desirable; for calculations we used 50% soy and 50% other legumes (eg, dry beans, lentils, chickpeas, and peas). **Beef, lamb, and pork are interchangeable. Red meat, chicken, and other poultry can be replaced with eggs or fish, or other sources of plant protein. Dairy food servings are interchangeable with approximately 30 g servings of poultry, fish, or pork, provided calcium intake is satisfied by other food groups. Foods should be mostly whole, unprocessed, or minimally processed. ††Includes fish and shellfish (eg, mussels and shrimps) from capture and farming. ‡‡Unsaturated oils include olive, soybean, rapeseed (or canola), sunflower, peanut oil, and most other plant or vegetable oils. §§Energy values for butter, tallow, and lard are included with dairy and meats.

Rockström et al, 2025

PHD (energy intake: 2400 kcal/d)

	Per capita recommended intake (g/day [range])	Per capita recommended intake (kcal/day)
Plant foods*		
Whole grains†	210 (20–50% of daily energy intake)	735
Tubers and starchy roots‡	50 (0–100)	50
Vegetables§	300 (200–600)	95
Fruits¶	200 (100–300)	145
Tree nuts and peanuts	50 (0–75)	275
Legumes	75 (0–150)	275
Animal-sourced foods**		
Milk or equivalents (eg, cheese)	250 (0–500)	145
Chicken and other poultry	30 (0–60)	60
Fish and shellfish††	30 (0–100)	25
Eggs	15 (0–25)	20
Beef, pork, or lamb	15 (0–30)	45
Fats, sugar, and salt		
Unsaturated plant oils‡‡	40 (20–80)	355
Palm and coconut oil	6 (0–8)	55
Lard, tallow, and butter§§	5 (0–10)	..
Sugar (added or free)	30 (0–30)	115
Sodium	<2	..

The Planetary Health Diet (PHD)

Table DP1. Example composition of planetary health dietary patterns for adults by food group, unit of intake, and dietary pattern.

Food groups	Food intake (grams per person per day)				Food intake (kilocalories per person per day)			
	Flexitarian	Pescatarian	Vegetarian	Vegan	Flexitarian	Pescatarian	Vegetarian	Vegan
grains	196	199	193	196	688	698	677	686
roots	50	50	50	50	52	52	52	52
vegetables	300	350	375	500	95	111	119	159
fruits	200	250	275	300	143	179	197	215
legumes	75	80	85	100	276	294	312	367
nuts&seeds	50	50	50	50	275	275	275	275
oils	46	49	49	54	410	433	433	477
sugar	30	30	30	30	115	115	115	115
red meat	15				44			
poultry	30				58			
milk	250	250	250		144	144	144	
eggs	15	15	15		22	22	22	
fish	30	30			23	23		
other	10	10	10	10	28	28	28	28
total					2373	2373	2373	2373

Rockström et al, 2025

The Planetary Health Diet (PHD)

"At present, all national diets deviate substantially from the PHD, but a shift to this pattern could avert approximately 15 million deaths per year (27% of total deaths worldwide)".

"Such a transition would reduce the rates of many specific non-communicable diseases and promote healthy longevity."

Rockström et al, 2025

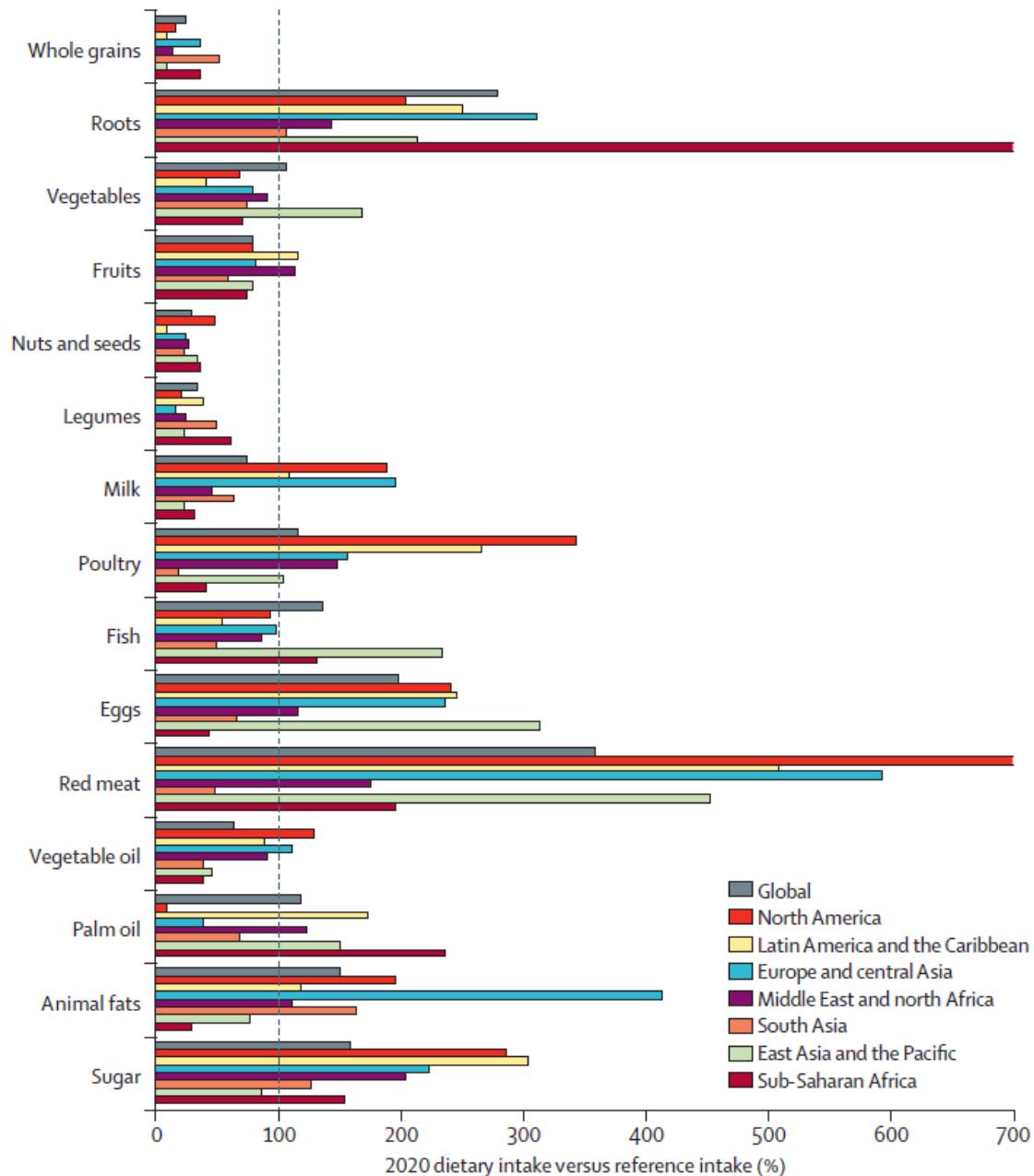
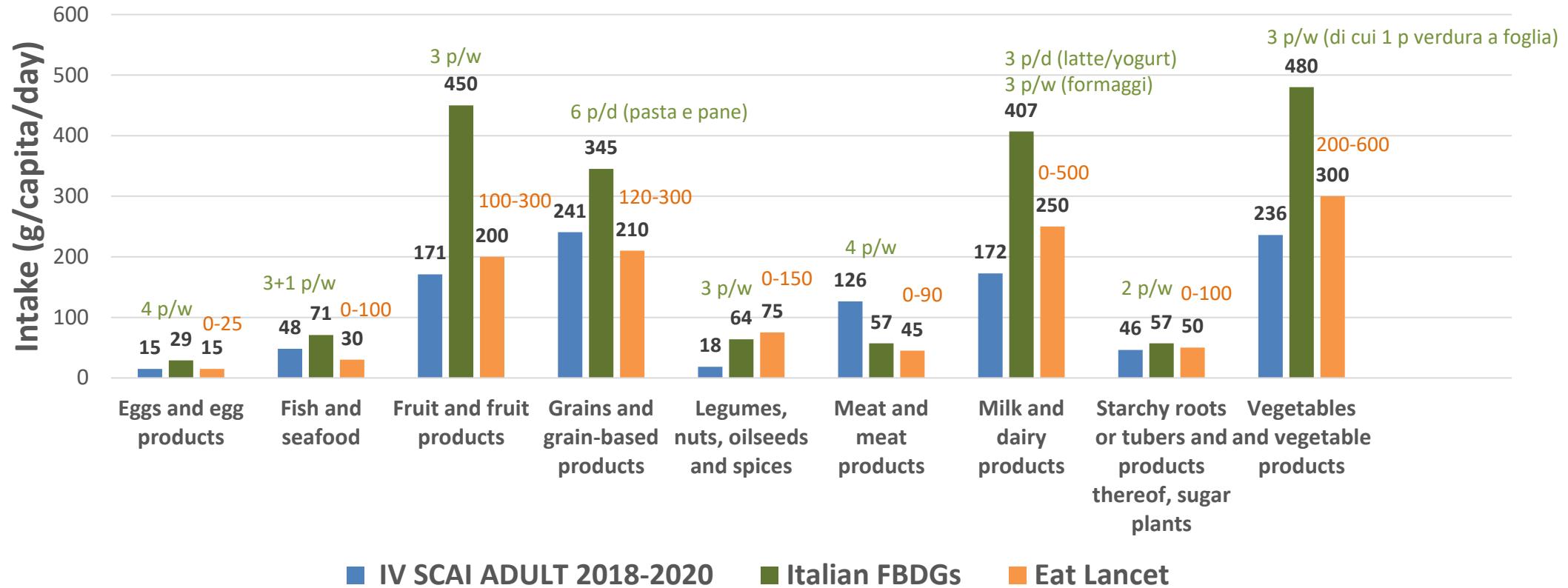


Figure 2: Differences between adult diets in 2020 and the planetary health diet globally and by region
The dashed line represents the reference values of the flexitarian version of the PHD from table 1 (see appendix 1 pp 24–25 for source).¹⁹⁵

Divario tra consumi e raccomandazioni

PHD (energy intake: 2400 kcal/d)
 Italian FBDGs (energy intake: 2500 kcal/d)



Latte e derivati:

172 g/d di cui 49 g/d di formaggio (3,4 – 6,9 p/w) e di cui 112 g di latte o latte fermentato (< 1 p/d)



Come ridurre il gap?

Rispetto alle linee guida alimentari italiane (2500 kcal) dovrebbe **aumentare** il consumo medio di:

- frutta: oltre il doppio; da poco più di 1 a 3 p/d
- verdura: almeno il doppio; da poco più di 1 a 3 p/d
- legumi: oltre il triplo; da meno di 1 a 3 p/w
- cereali, meglio se integrali: circa la metà; da circa 4 a 6 p/d
- pesce: circa la metà; da meno di 3 a 4 p/w
- latte/yogurt: oltre il triplo; da meno di 1 a 3 p/d

Rispetto alle linee guida alimentari italiane dovrebbe **ridursi** il consumo medio di:

- carne e derivati: oltre la metà; da oltre 8 a 4 p/w
- formaggi: il range di consumo 3,4 – 6,9 p/w si riduce a 3 p/w

Dieta Eat Lancet (2400 kcal):

- In confronto con le linee guida italiane **si riduce il gap** rispetto al consumo attuale, **eccetto per i legumi e la carne** per cui il consumo suggerito rispettivamente aumenta e diminuisce.

Convegno



METANO E SISTEMI AGROALIMENTARI

QUALI SCELTE PER LA
RIDUZIONE DELLE
EMISSIONI CLIMALTERANTI

LUNEDÌ 10 NOVEMBRE 2025

ORE 09:30 - 13:00

Cascina Nascosta

Viale Emilio Alemagna 14, Milano

Grazie

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