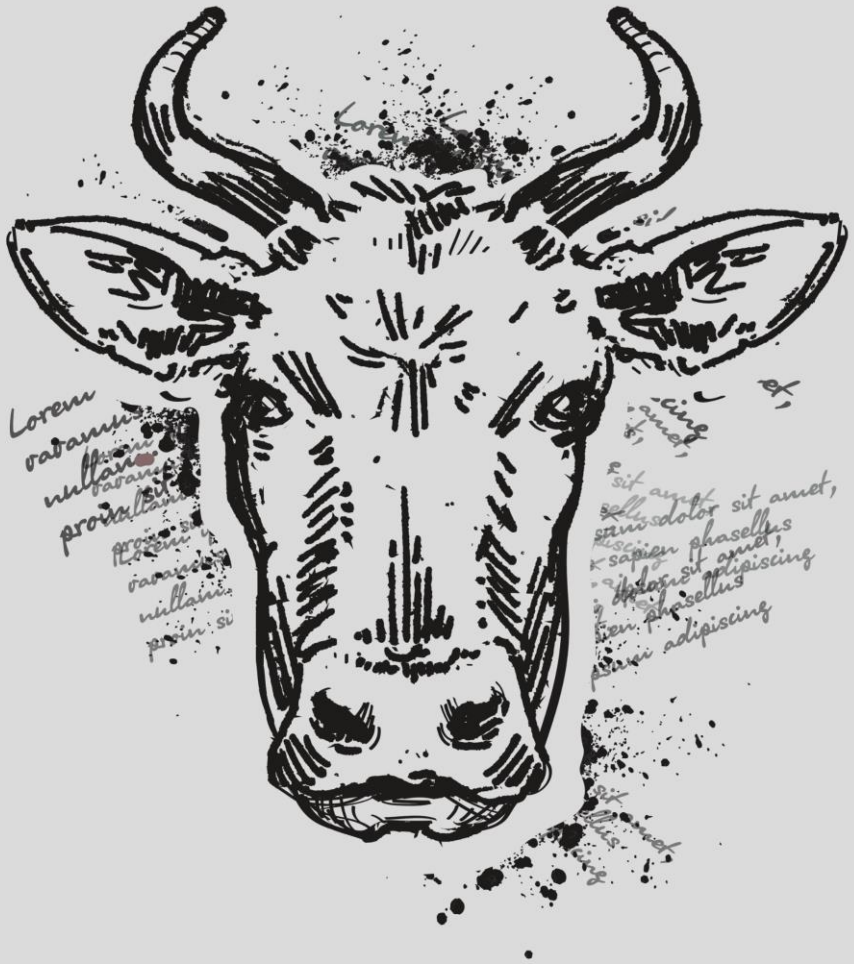


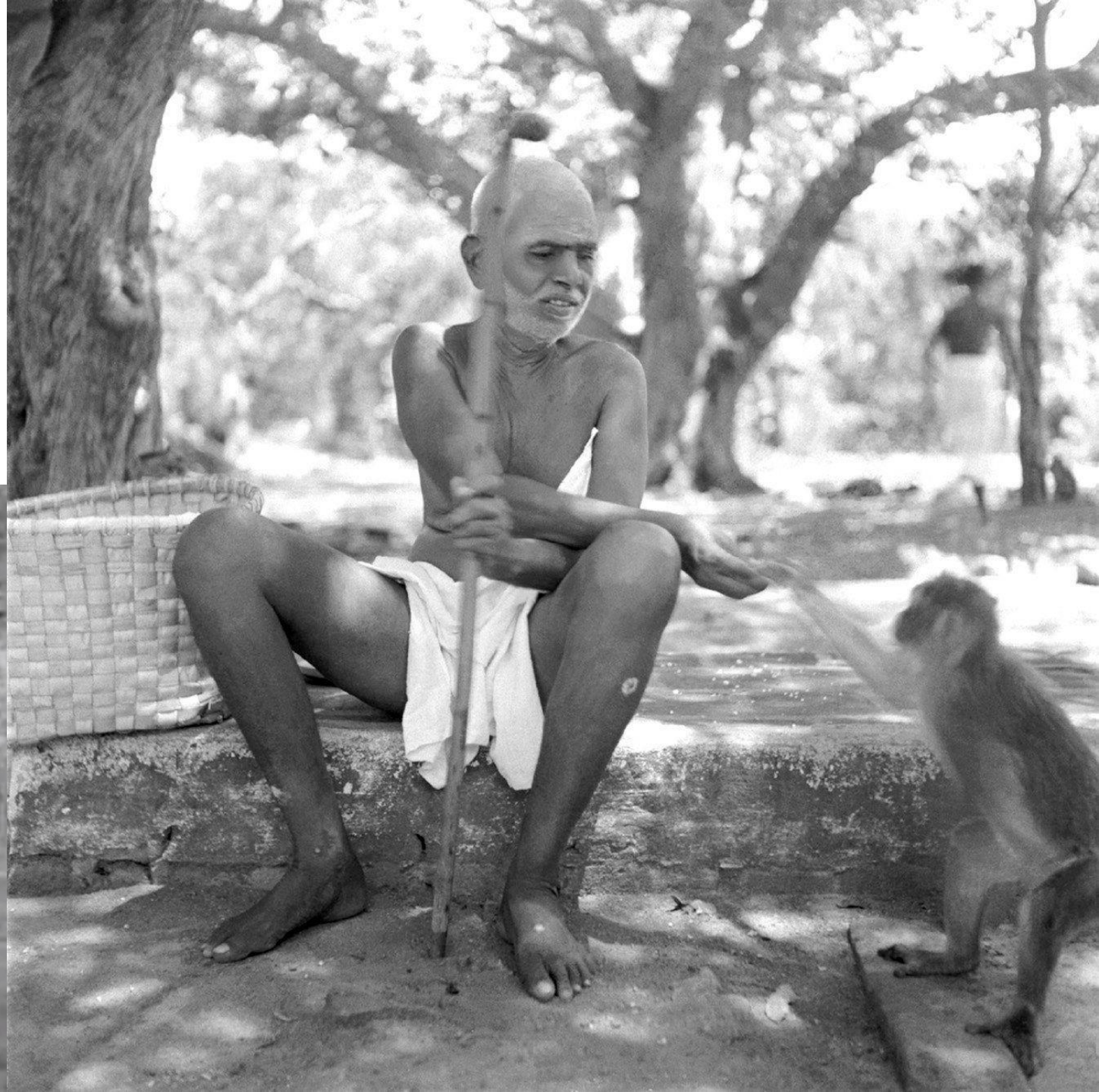
COWNOMICS

The *Holy* Cow—Fulcrum of a Civilization

ARTI AGARWAL

AHIMSA

In a famous quote, the enlightened Master Ramana Maharshi answered a seeker thus:
The seeker asked, "*Bhagwan*, how should we treat others?"
Maharshi answered, ***"There are no others."***



COW, A SACRED, SENTIENT BEING

It is mentioned, that the divine rainwater which Devraj Indra showers on humans, is present in the milk of the cows as well.

च यदस्याप्स्वा निषत्तमुतो तदस्मै मध्विच्चच्छद्यात्
पृथिव्यामतिषितं यदूधः पयो गोष्वदधा ओषधीषु

Sam Veda, Chapter 10, Verse 9

"O yajmans! Indra is omnipresent in the Cosmos. He showers human beings with divine sweet water with his Vajra. The same water is present in the milk of cows and the juice of herbs, available to us."

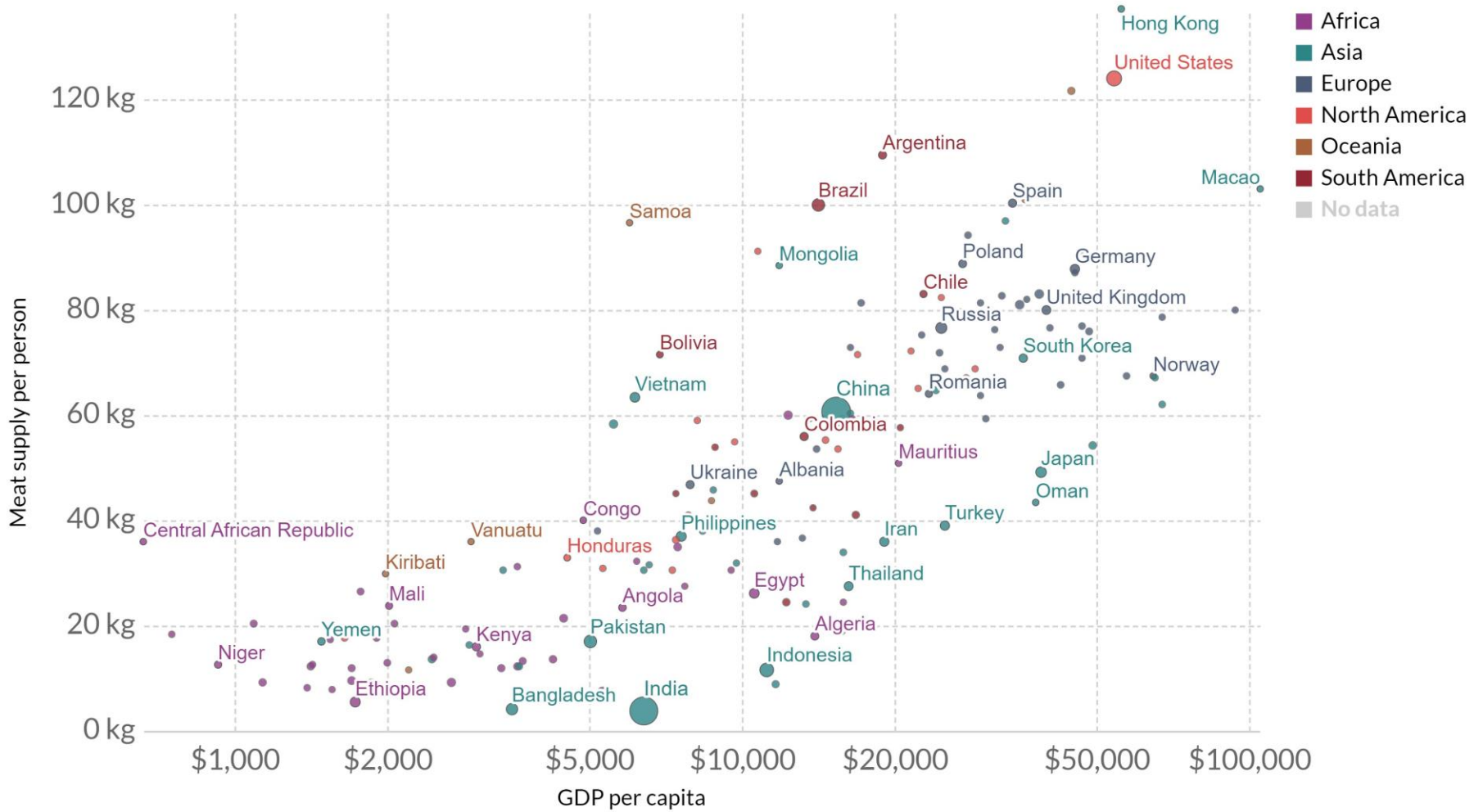
HOW HUNGRY ARE WE?

"In 2018, an estimated 69 billion chickens; 1.5 billion pigs; 656 million turkeys; 574 million sheep; 479 million goats; and 302 million cattle were killed for meat production." - Our World in Data

That's **72.511 billion animals slaughtered in one year**, making their way to our plates. That is roughly ten times the total human population on the planet. How hungry can we get?

Meat consumption vs. GDP per capita, 2017

Average meat consumption per capita, measured in kilograms per year versus gross domestic product (GDP) per capita measured in 2011 international-$. International-$ corrects for price differences across countries. Figures do not include fish or seafood.



Source: UN FAO; World Bank, World Development Indicators

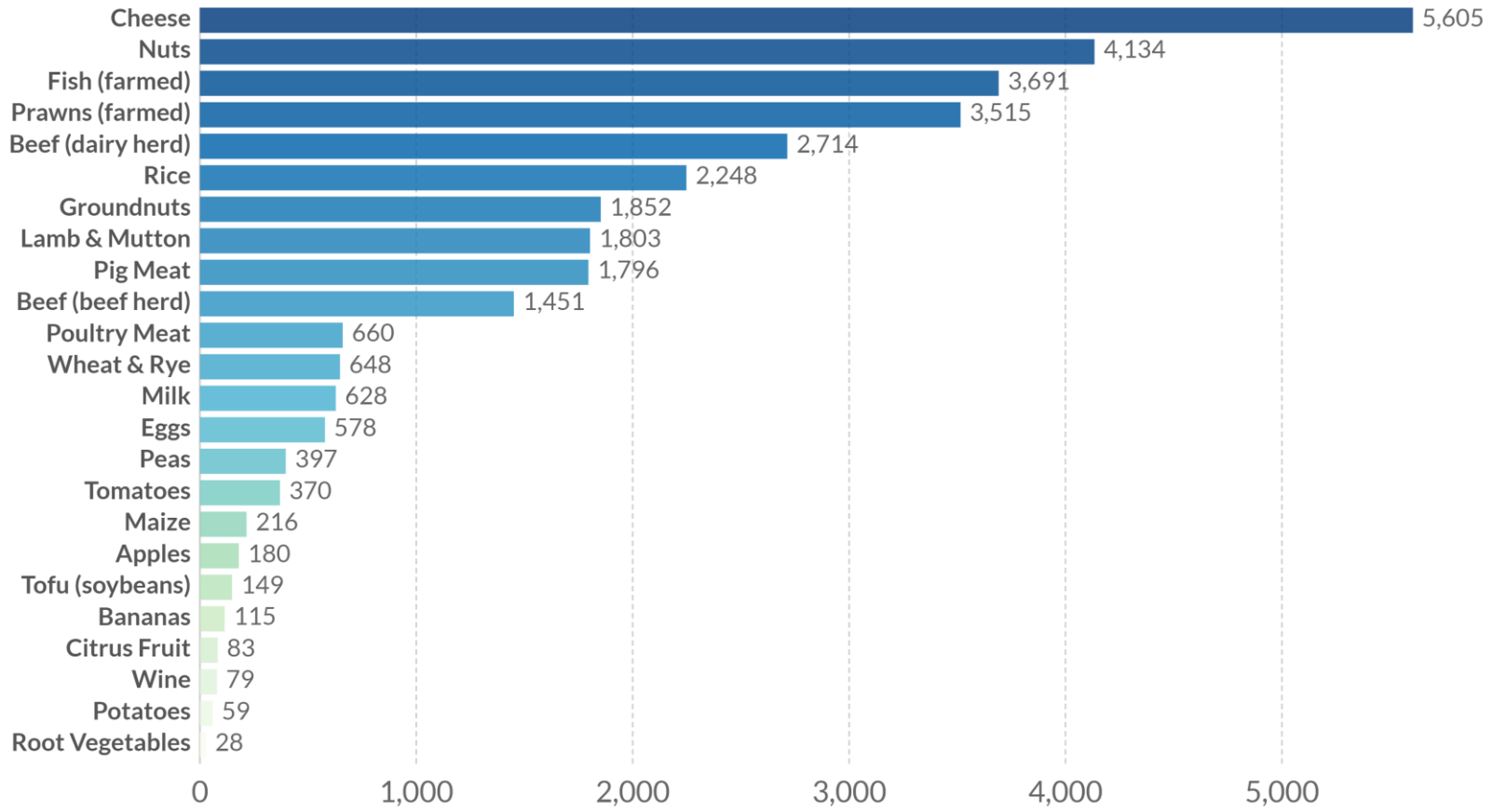
OurWorldInData.org/meat-production • CC BY

THE COST OF " FOOD"

Freshwater withdrawals per kilogram of food product

Freshwater withdrawals are measured in liters per kilogram of food product.

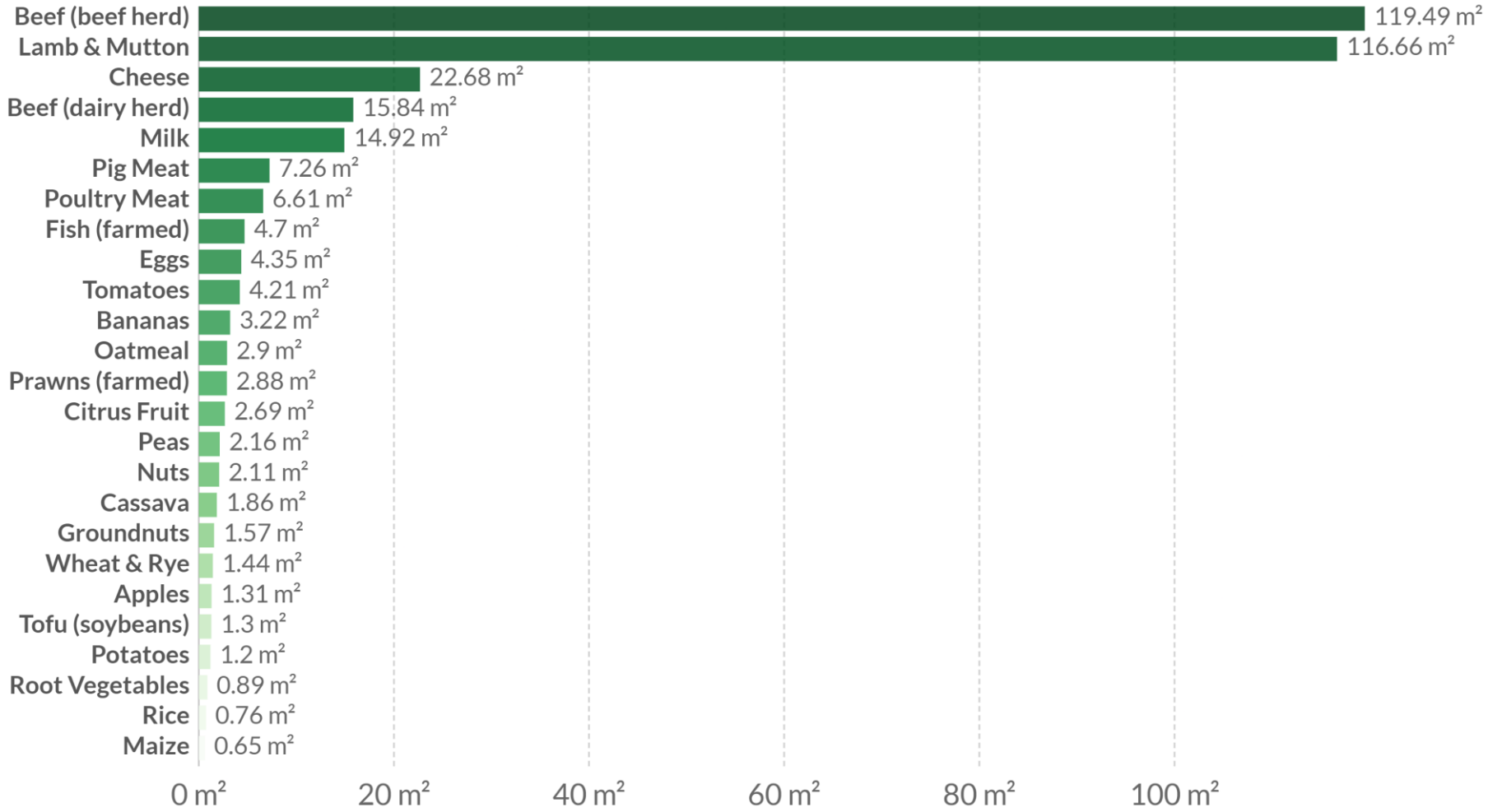
Our World in Data



Source: Poore, J., & Nemecek, T. (2018). Reducing food's environmental impacts through producers and consumers.
Note: Data represents the global average freshwater withdrawals from food products based on a large meta-analysis of food production covering 38,700 commercially viable farms in 119 countries.
OurWorldInData.org/environmental-impacts-of-food • CC BY

Land use of foods per 1000 kilocalories

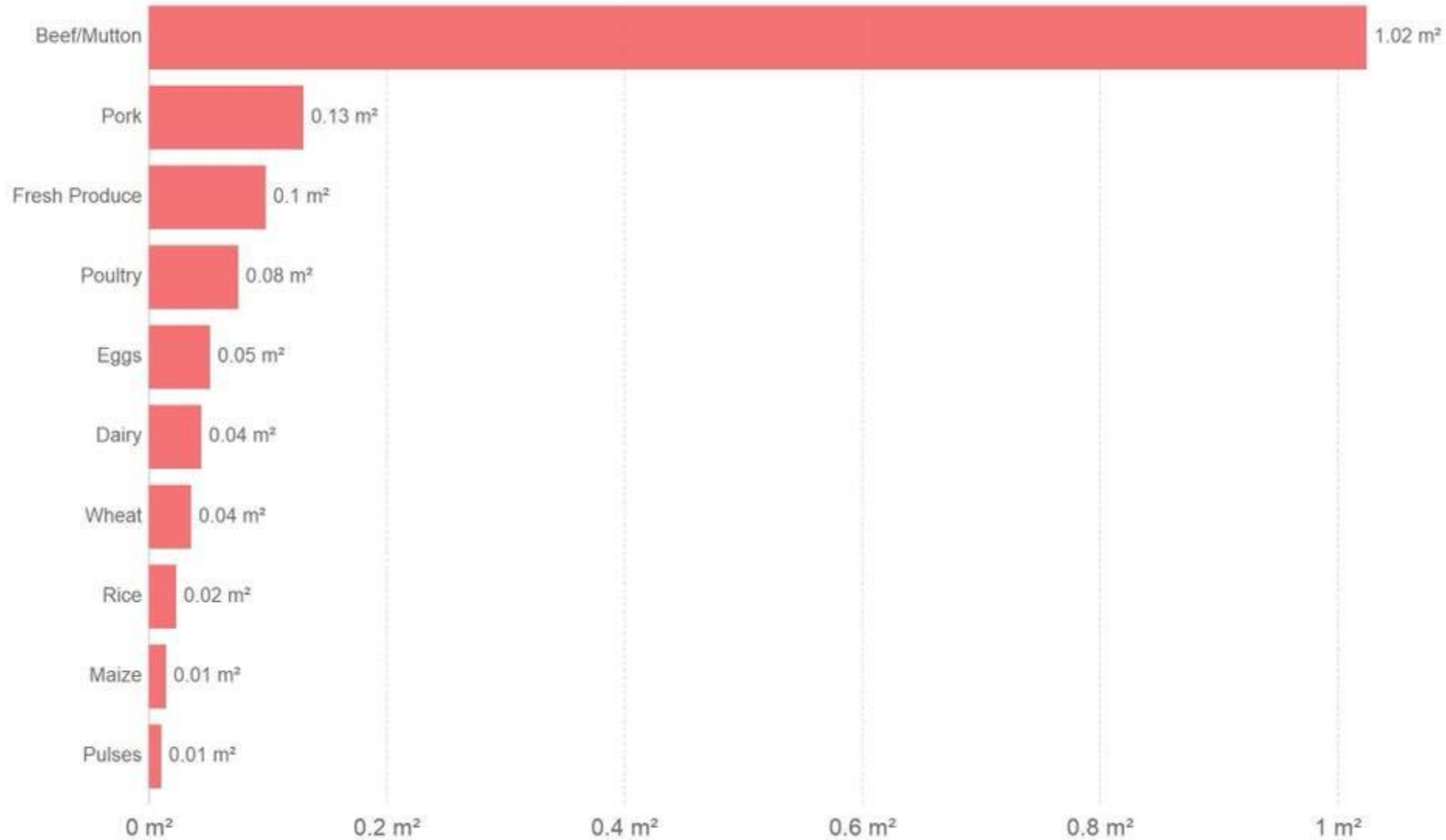
Land use is measured in meters squared (m²) required to produce 1000 kilocalories of a given food product.



Source: Poore, J., & Nemecek, T. (2018). Additional calculations by Our World in Data.
Note: Data represents the global average land use of food products based on a large meta-analysis of food production covering 38,700 commercially viable farms in 119 countries.

Land use per gram of protein, by food type

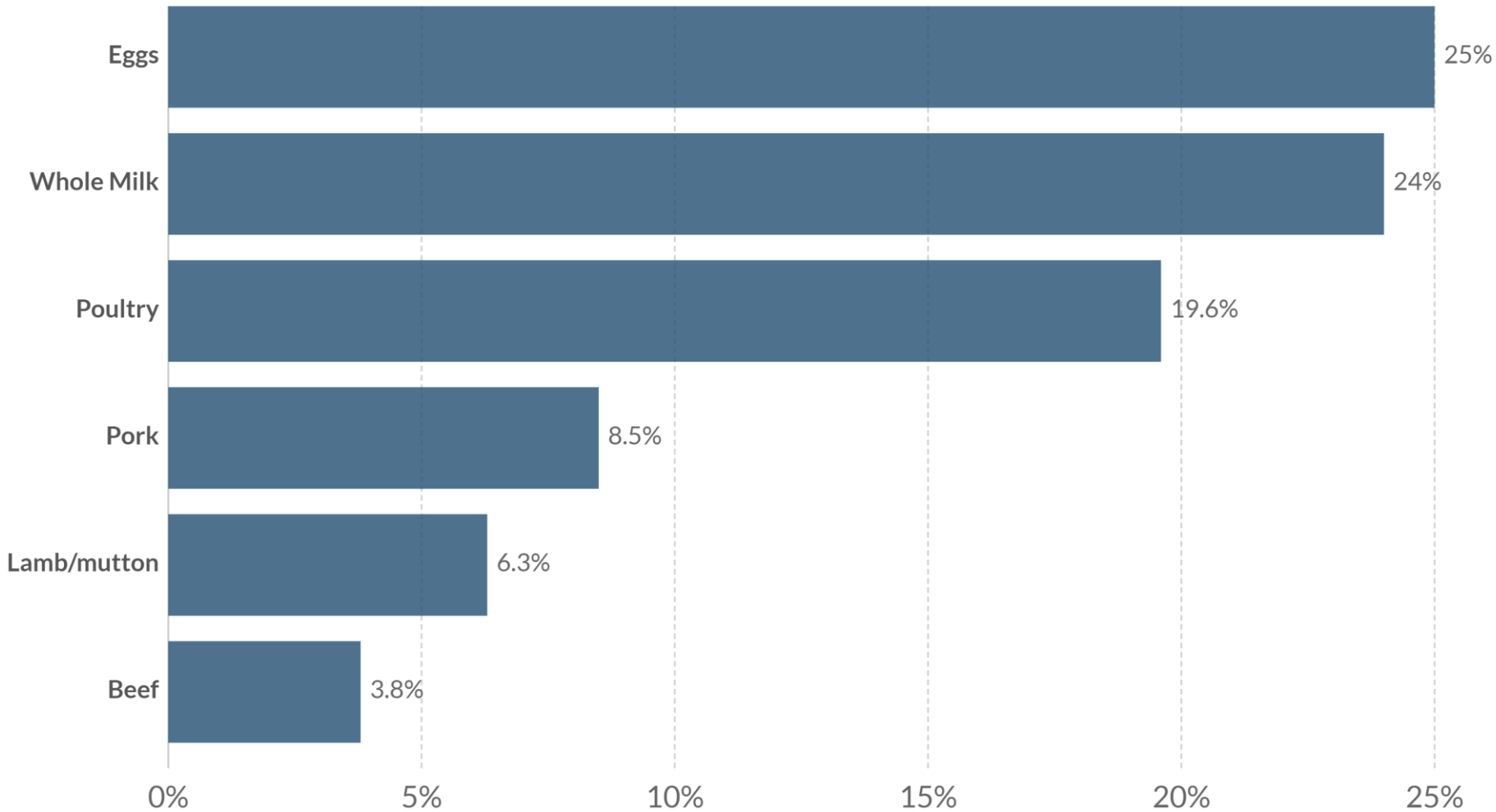
Average land use area needed to produce one unit of protein by food type, measured in metres squared (m²) per gram of protein over a crop's annual cycle or the average animal's lifetime. Average values are based on a meta-analysis of studies across 742 agricultural systems and over 90 unique foods.



Source: Environmental footprint by food type (protein) - Clark & Tilman (2017)

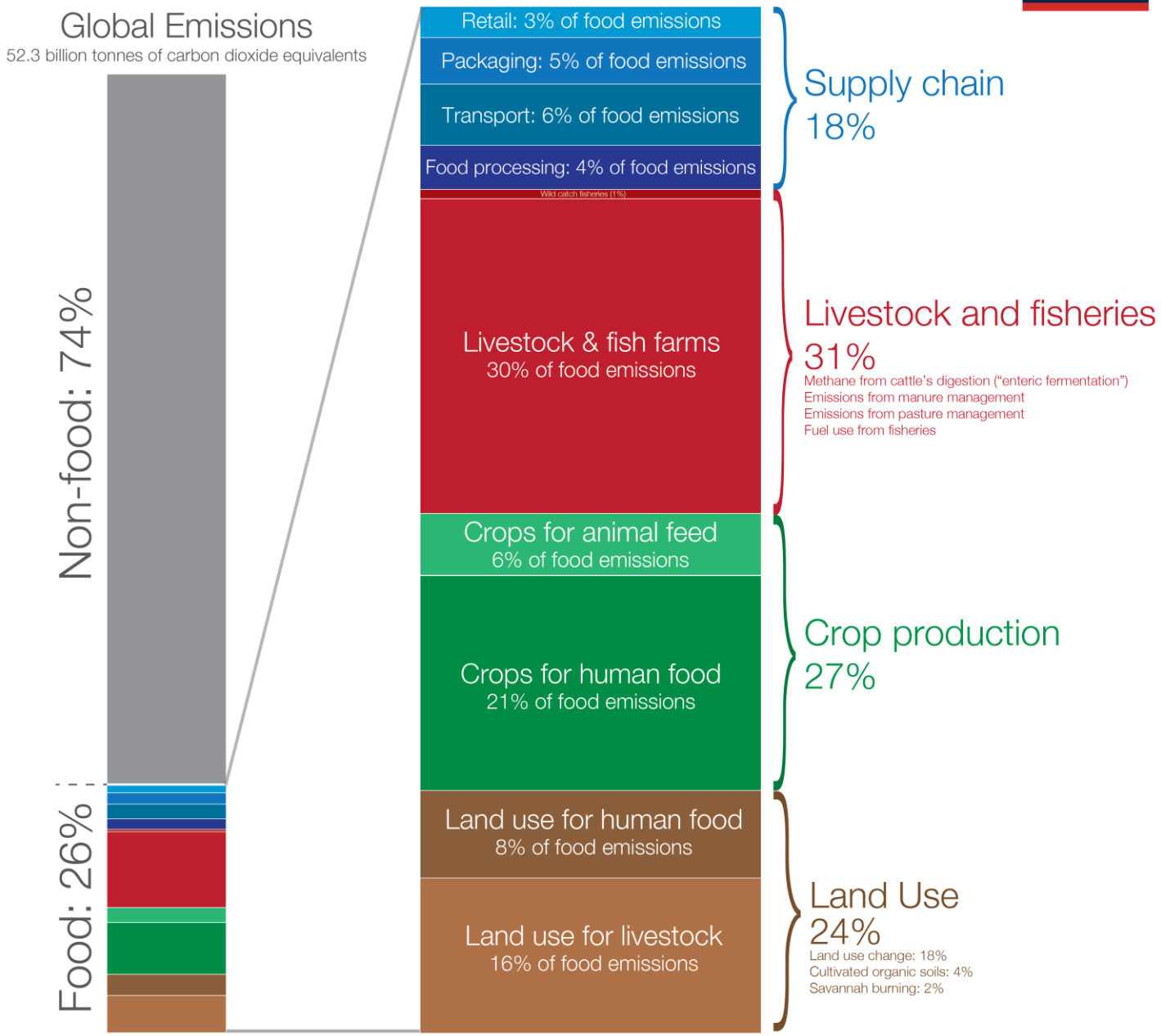
Protein efficiency of meat and dairy production

The protein efficiency of meat and dairy production is defined as the percentage of protein inputs as feed effectively converted to animal product. An efficiency of 25% would mean 25% of protein in animal feed inputs were effectively converted to animal product; the remaining 75% would be lost during conversion.



Source: Alexander et al. (2016). Human appropriation of land for food: the role of diet. Global Environmental Change.
OurWorldInData.org/meat-production • CC BY

Global greenhouse gas emissions from food production



Data source: Joseph Poore & Thomas Nemecek (2018). Reducing food's environmental impacts through producers and consumers. Published in *Science*.
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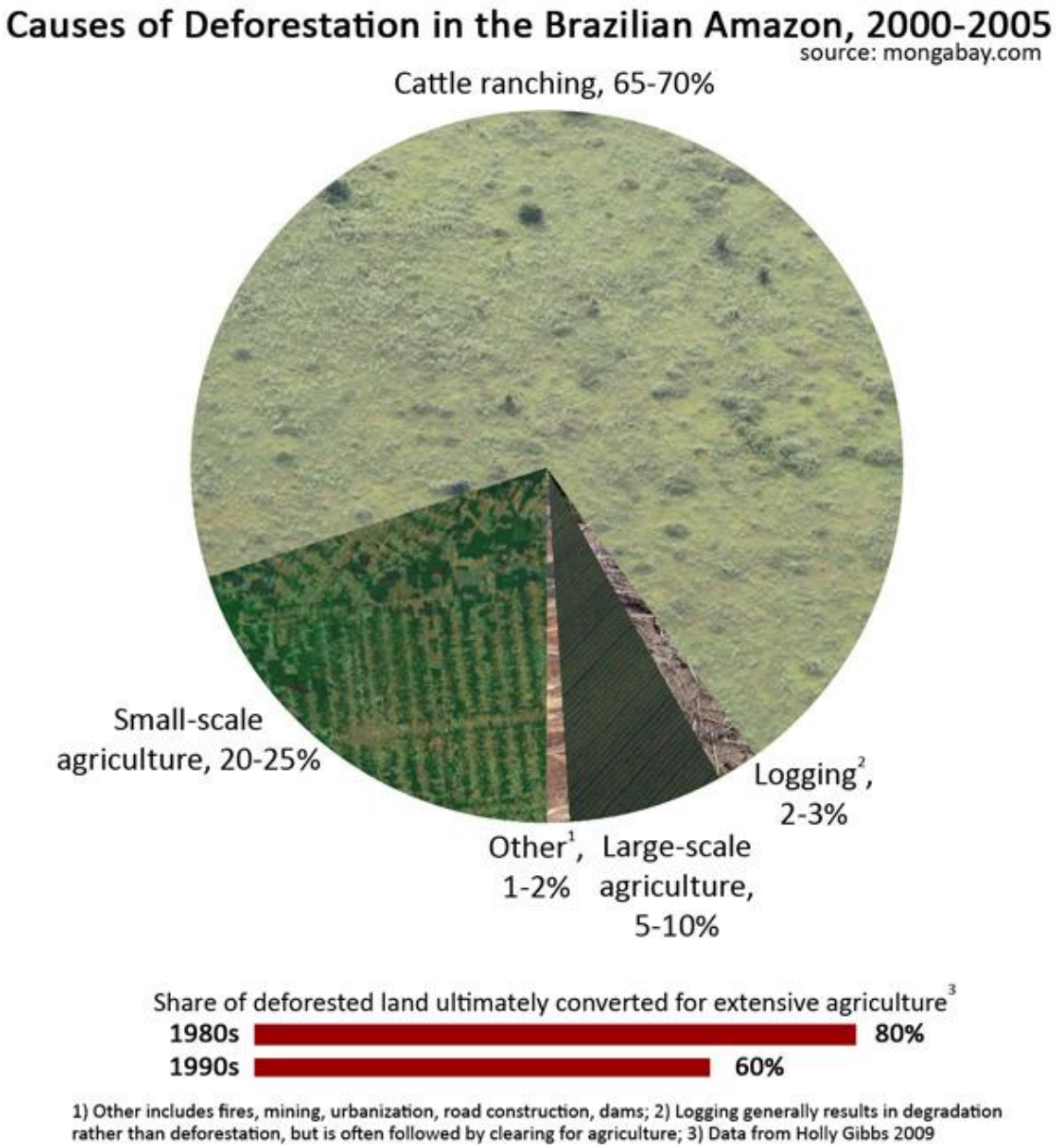
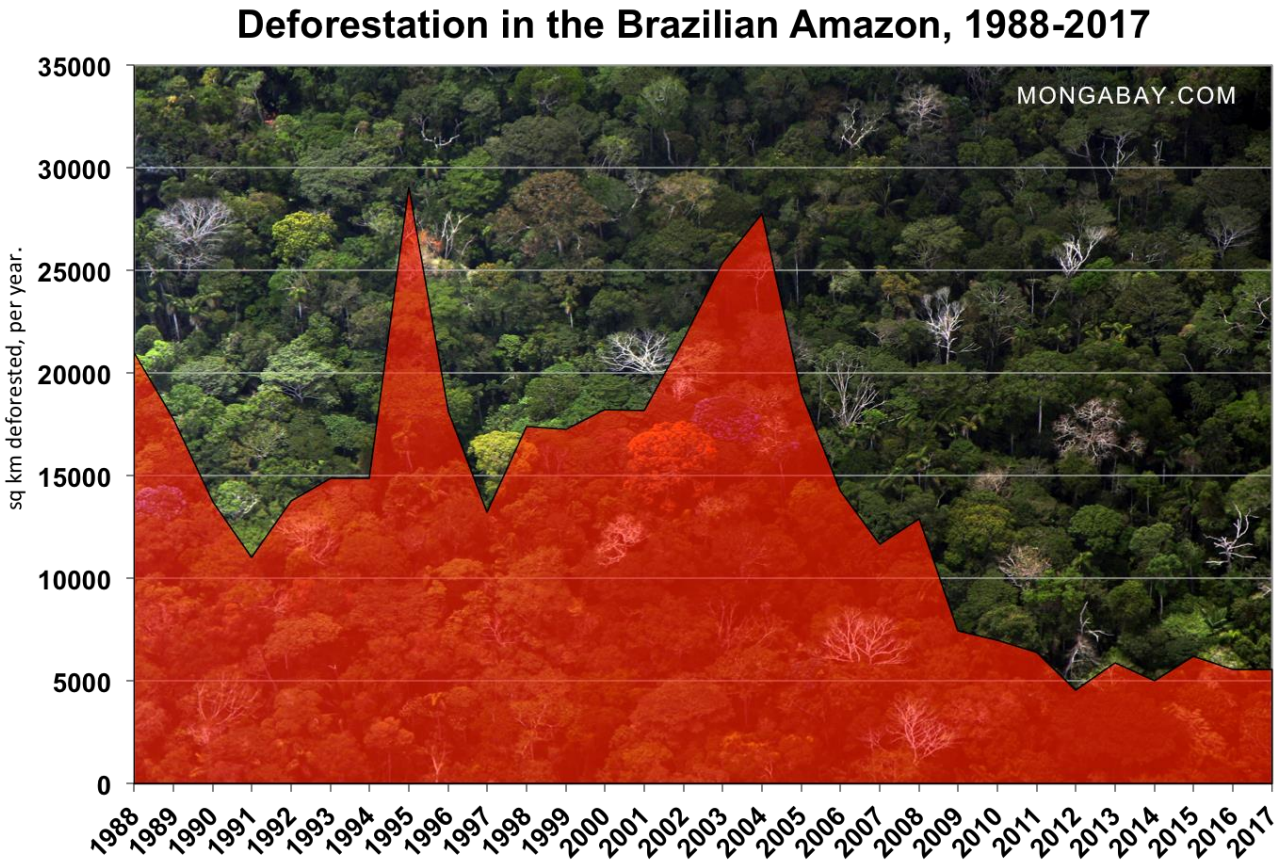
HELLO, CLIMATE CHANGE

"Climate change" is, really, just another word for Nature's fury.

Agriculture is one of the major culprits in contributing to atmospheric Greenhouse Gas Emissions (GHGE), and the food system is an even bigger culprit, since it includes some of the processes in addition to those included in agricultural practices. **Food contributes to 26% of the world's GHG emissions.**

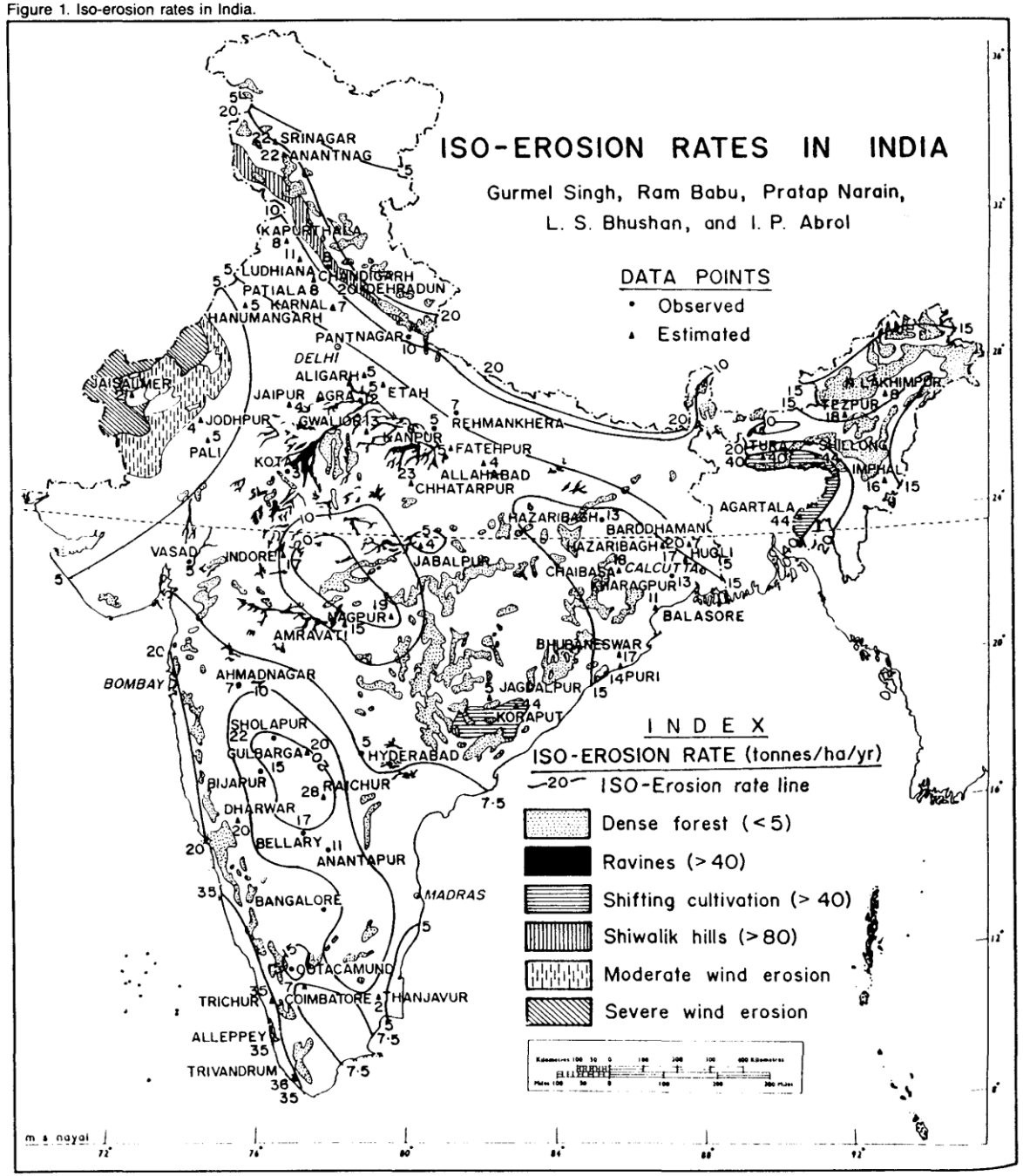


Amazon forests of Brazil are burning at the rate of three football fields per minute,




PARÁ, BRAZIL · August 20, 2019
planet.

Figure 1. Iso-erosion rates in India.

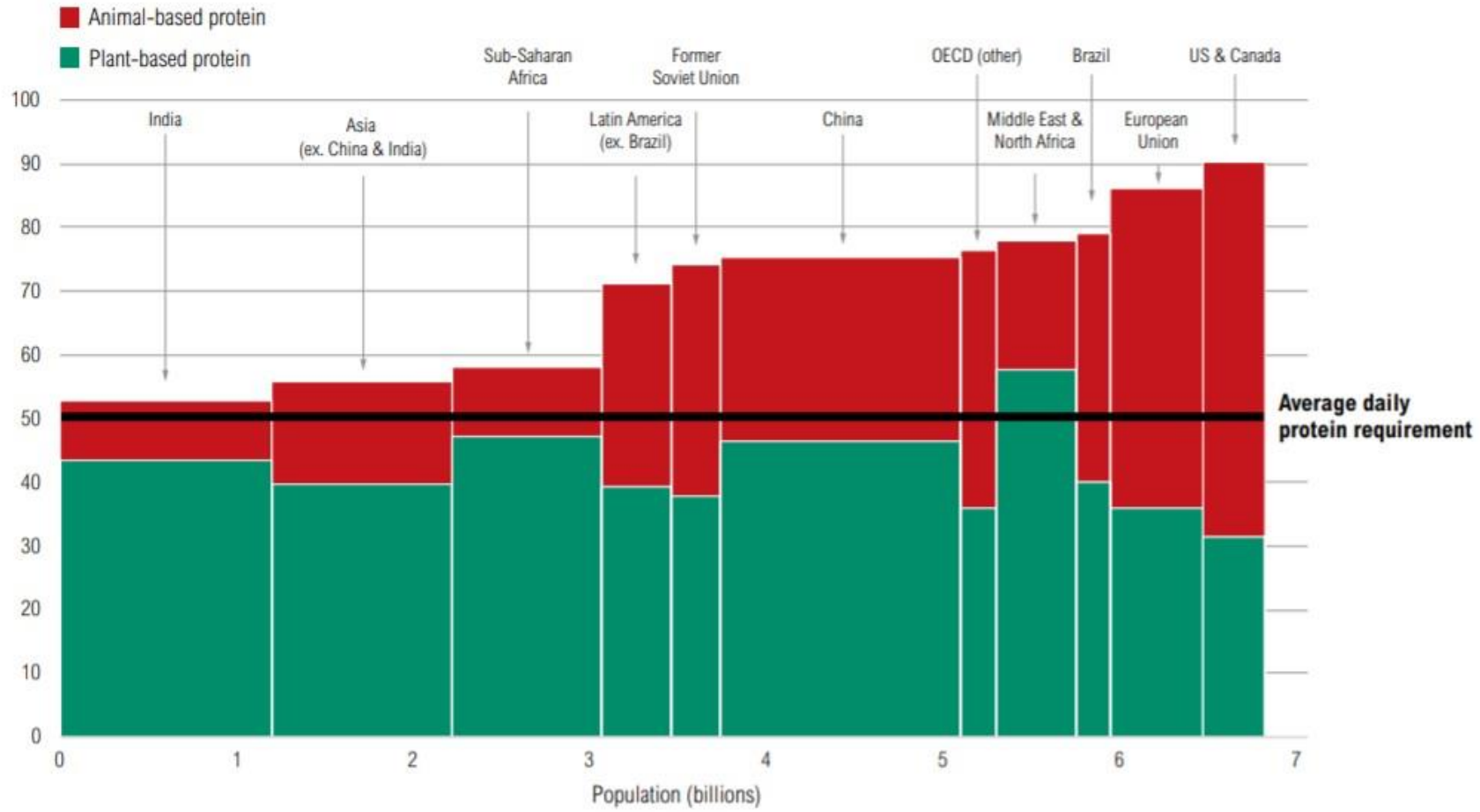


LOSS OF FERTILE SOIL

As per a report by AT Kearney, in 1970, the ratio of humans to arable land was around 0.38 hectares per head. By 2050, this is projected to decline to 0.15 hectares. Per Capita arable land in India, which is around 0.15 ha at present, is expected to decrease to a meager 0.09 ha by 2075, as per projections of government of India (2016).

DO WE NEED THAT MUCH PROTEIN?

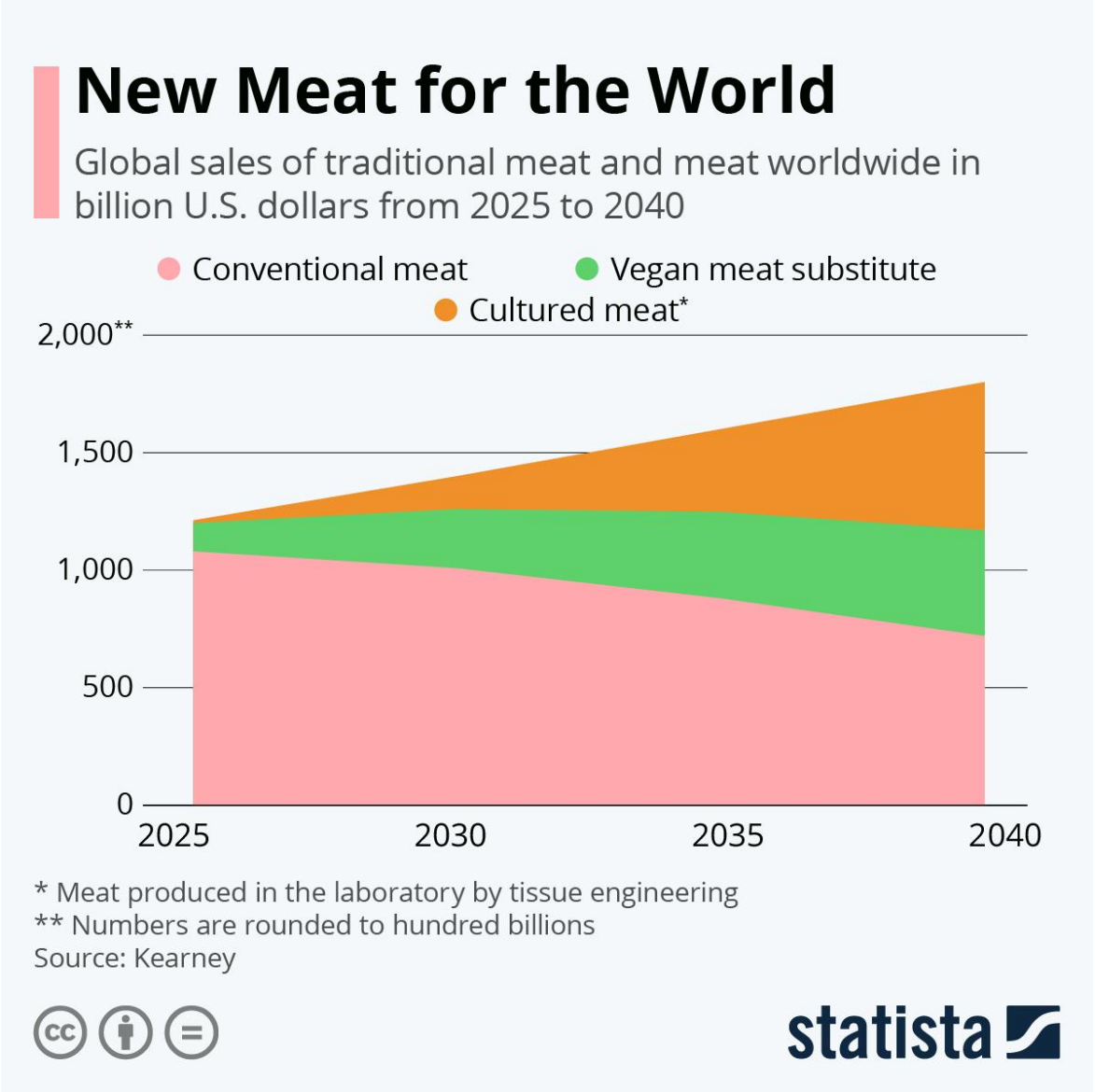
Figure ES-1 | Protein Consumption Exceeds Average Estimated Daily Requirements in All the World's Regions, and is Highest in Developed Countries
g/capita/day, 2009

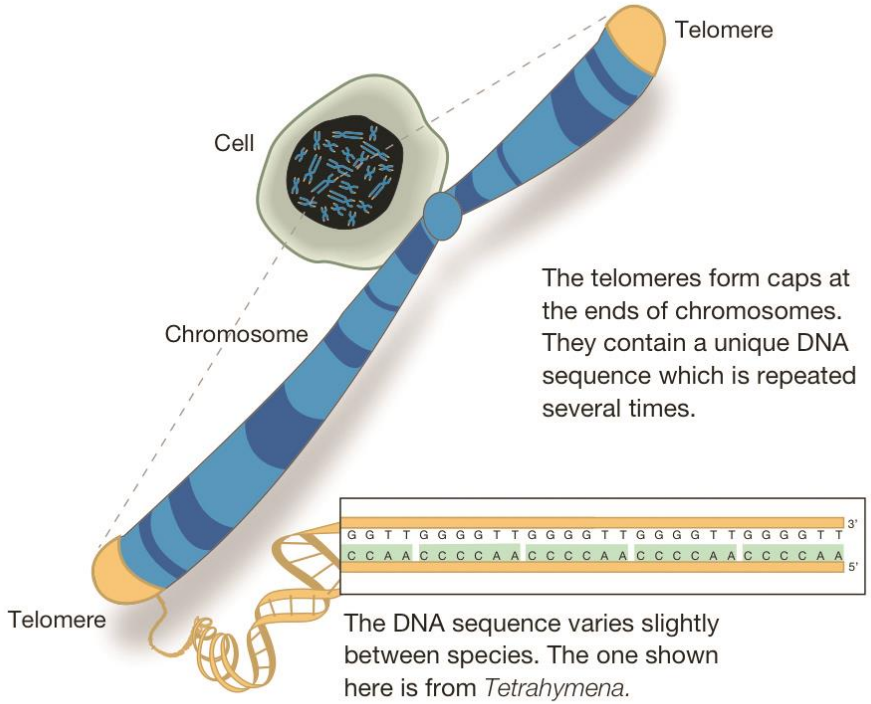


Source: GlobAgri model with source data from FAO (2015) and FAO (2011a). Width of bars is proportional to each region's population. Average daily protein requirement of 50 g/day is based on an average adult body weight of 62 kg (Walpole et al. 2012) and recommended protein intake of 0.8 g/kg body weight/day (Paul 1989). Individuals' energy requirements vary depending on age, gender, height, weight, pregnancy/lactation, and level of physical activity.

As of 2009, on average, more than 90% people all over the world consumed more protein than the quantity as per the dietary recommendations.

PLANT-BASED ALTERNATIVES TO MEAT

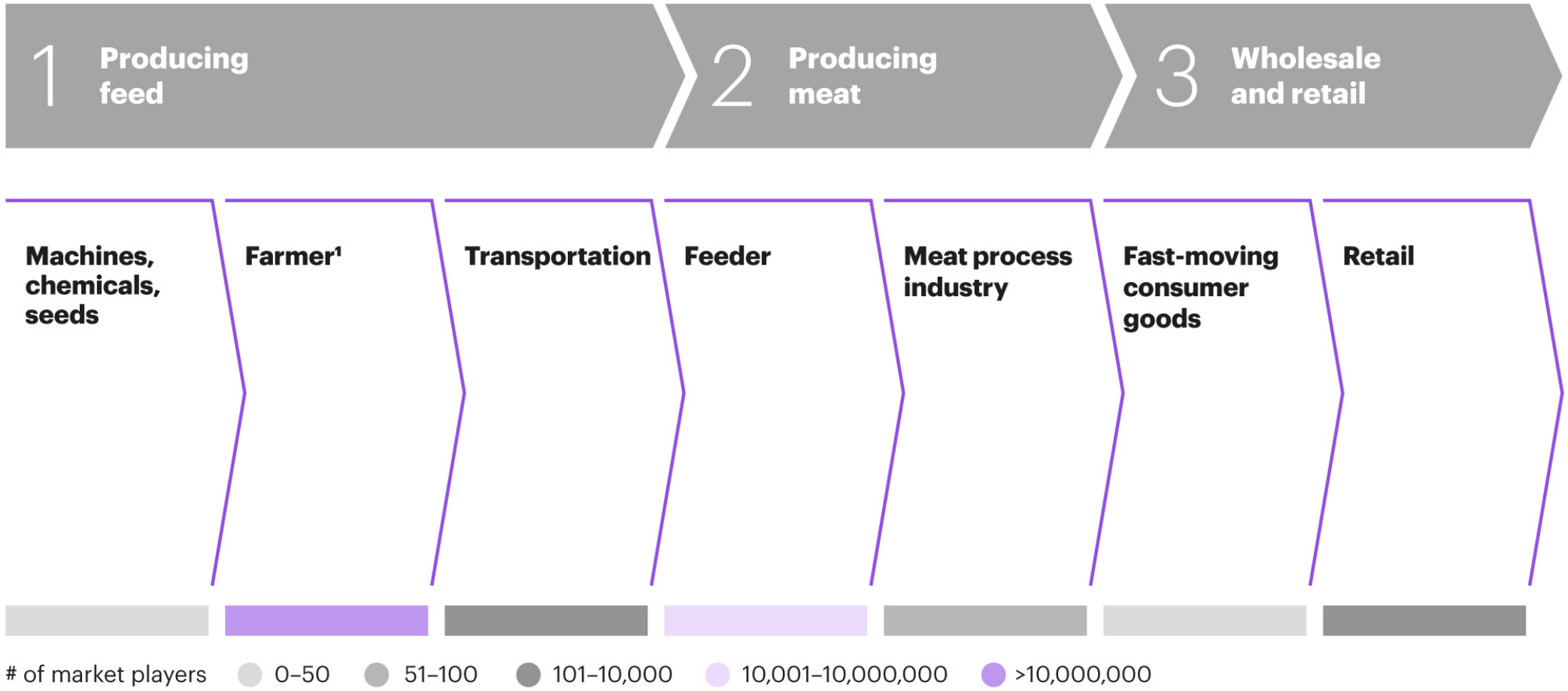




A study in 2008 found that just 3 months of plant-based diet had shown significant change in telomeres activity. A follow up study in 2013 showed a marked increase in the telomeres length in the treatment group.

Figure 2

The global meat value chain consists of seven steps in three areas



[1] Farmers cultivating at least five hectares

Sources: Organisation for Economic Co-operation and Development, Food and Agriculture Organization of the United Nations, Zion Market Research, Meat Atlas, Grand View Research; Kearney analysis

BIOFERTILIZER MADE FROM COW DUNG

Numerous studies have been performed to assess the efficacy of carbon sequestration with manure and biofertilizer in different scenarios, and as per this review of 74 such studies, it was found that biofertilizer and manure bind a lot more carbon into the soil than inorganic NPK fertilizers.

Thus, use of farmyard manure and organic fertilizers have the potential to bind atmospheric nitrogen emissions as well, which contribute to the Greenhouse Gas Effect. They add nutrition value to the soil, which are sustained over long periods of time.

COW DUNG ASH OR " BHASMA"

Cow dung ash contains calcium oxide, magnesium oxide, calcium sulphate, aluminium oxide, iron oxide and a high percentage of silica.

Based on studies, cow dung ash was considered to be a clean, cheap and highly effective adsorbent for removing heavy metal from aqueous solutions.

What Bhagvat Mahapuran says about torturing others:

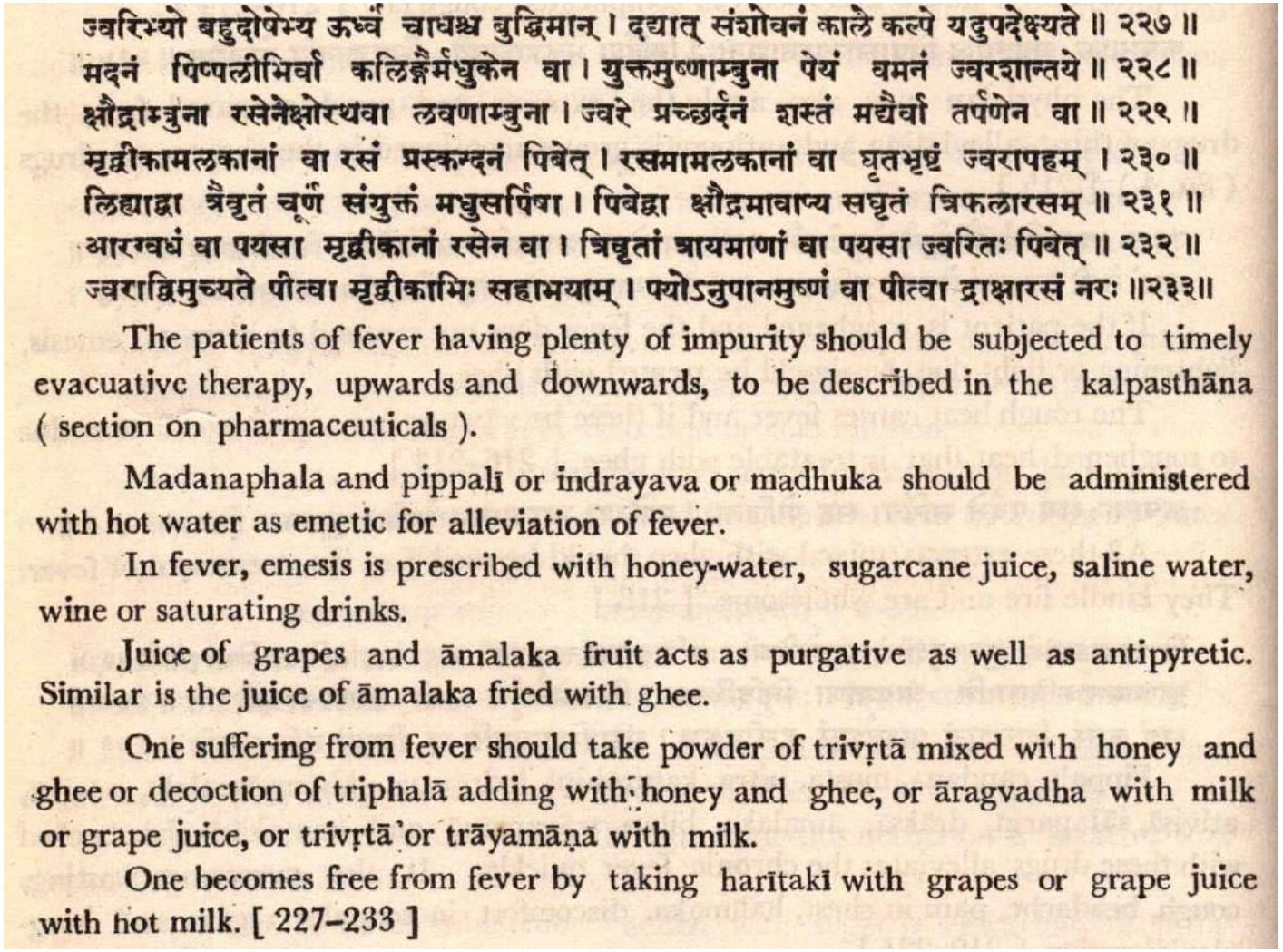
कृमिविड्भस्मसंज्ञान्ते राजनाम्नोऽपि यस्य च ।
भूतध्रुक् तत्कृते स्वार्थं किं वेद निरयो यतः ।। ४१

"इसी शरीरके या इसके सम्बन्धियोंके लिये जो किसी भी प्राणीको सताता है, वह न तो अपना स्वार्थ जानता है और न तो परमार्थ। क्योंकि प्राणियोंको सताना तो नरकका द्वार है ।।४१।"

Srimad Bhagvat Mahapuran, Skanda 12, Chapter 2, Verse 41

"The one who tortures other beings for his own body or other bodies related to him, neither knows his self interest, nor the Ultimate, Divine, because torturing others is assuredly the door to *Naraka loka*."

AYURVEDA



ज्वरिभ्यो बहुदोषेभ्य ऊर्ध्वं चाधश्च बुद्धिमान् । दद्यात् संशोधनं काले कल्पे यदुपदेक्ष्यते ॥ २२७ ॥
मदनं पिप्पलीभिर्वा कलिङ्गैर्मधुकेन वा । युक्तमुष्णाम्बुना पेयं वमनं ज्वरशान्तये ॥ २२८ ॥
क्षौद्राम्बुना रसेनेक्षोरथवा लवणाम्बुना । ज्वरे प्रच्छर्दनं शस्तं मद्यैर्वा तर्पणेन वा ॥ २२९ ॥
मृद्वीकामलकानां वा रसं प्रस्कन्दनं पिबेत् । रसमामलकानां वा घृतभृष्टं ज्वरापहम् । २३० ॥
लिह्याद्वा त्रैवृतं चूर्णं संयुक्तं मधुसर्पिषा । पिबेद्वा क्षौद्रमावाप्य सघृतं त्रिफलारसम् ॥ २३१ ॥
आरग्वधं वा पयसा मृद्वीकानां रसेन वा । त्रिवृतां त्रायमाणां वा पयसा ज्वरितः पिबेत् ॥ २३२ ॥
ज्वराद्विमुच्यते पीत्वा मृद्वीकाभिः सहाभयाम् । पयोऽनुपानमुष्णं वा पीत्वा द्राक्षारसं नरः ॥२३३॥

The patients of fever having plenty of impurity should be subjected to timely evacuative therapy, upwards and downwards, to be described in the kalpasthāna (section on pharmaceuticals).

Madanaphala and pippalī or indrayava or madhuka should be administered with hot water as emetic for alleviation of fever.

In fever, emesis is prescribed with honey-water, sugarcane juice, saline water, wine or saturating drinks.

Juice of grapes and āmalaka fruit acts as purgative as well as antipyretic. Similar is the juice of āmalaka fried with ghee.

One suffering from fever should take powder of trivṛtā mixed with honey and ghee or decoction of triphalā adding with honey and ghee, or āragvadha with milk or grape juice, or trivṛtā or trāyamāṇa with milk.

One becomes free from fever by taking harītakī with grapes or grape juice with hot milk. [227–233]

The *Charaka Samhita* gives innumerable medicinal benefits of *desi* cow milk, ghee, curd, *gomaya* and *gomutra*. They are used in combinations in all forms of *Rasaayana* (medicines) – decoctions, poultice, surfactant, fluid for *basti* (enema), soups, snuffs, anointments, fumigants and other edible and non-edible medications.

THERAPEUTIC EFFECTS OF GAUMUTRA

Taxol (µg/ml)	Initial titre of cancer cells	Final titre of cancer cells with Taxol	Final titre of viable cancer cells with Taxol and Cow urine distillate
0.001	$0.9x10^6$	$0.059 x10^6$	$0.039 x10^6$
0.005	$0.9x10^6$	$0.042 x10^6$	$0.032 x10^6$
0.01	$0.9x10^6$	$0.036 x10^6$	$0.012 x10^6$

A research paper by the *Journal of Pharmacy Research* establishes cow urine concentrate as a potent agent with antimicrobial and anthelmintic activity.

Newly emerged research (Dhama, 2005) now also proves the efficacy of cow urine in treating cancer.

INDIA'S STRAY COW PROBLEM

COWNOMICS MODEL

***Gaushala* (Humane cow shelter)**

Agricultural land with organic farming

Grazing pasture—planted with grass and surrounded by trees. Cows graze here.

Rain water harvesting systems and water tank

Solar Panels with battery storage

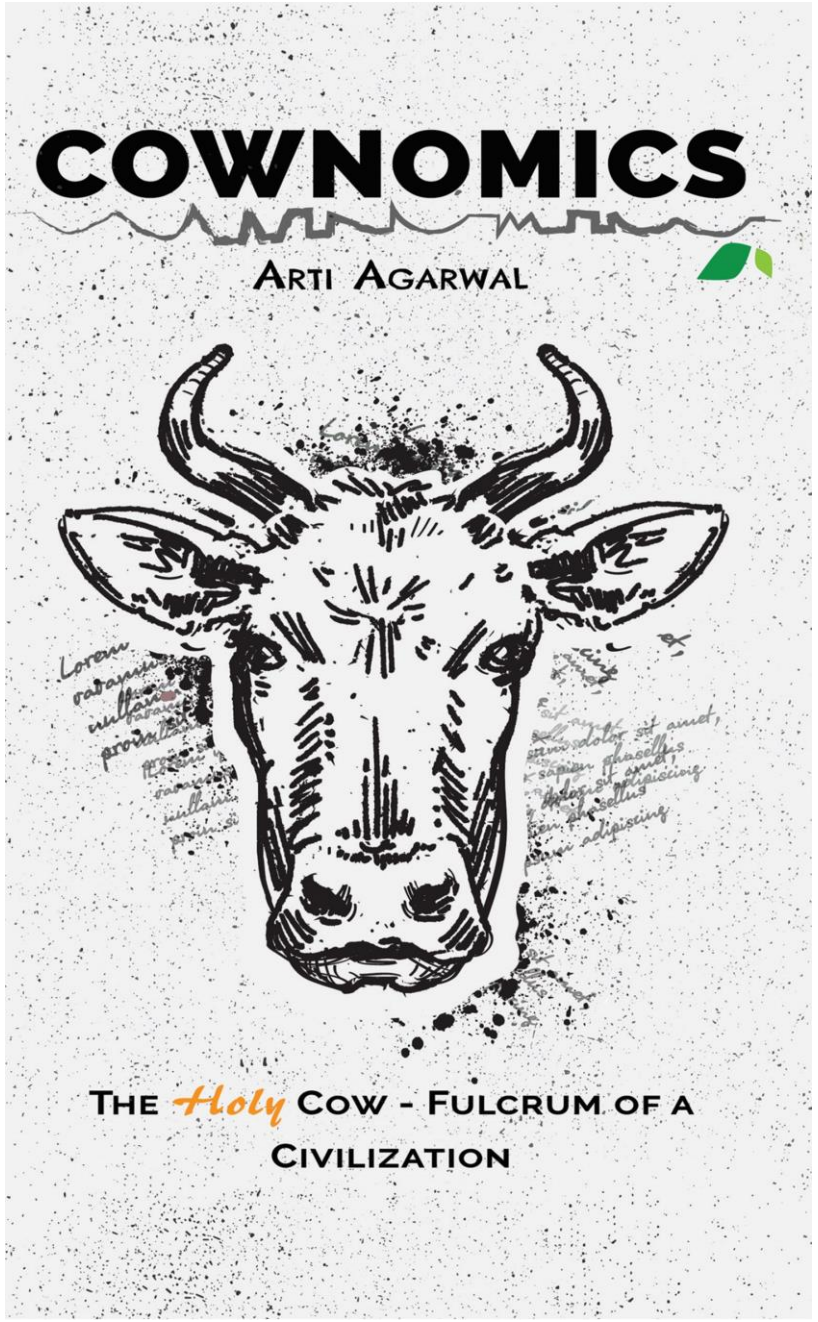
Biogas Digester(s) with plumbing for cooking gas

Power plant

Home Crafts Center

Market space

Learning Center



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