Food and Agriculture Organization of the United Nations

Contribution of milk and dairy products to healthy diets for improved nutrition and health outcomes

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Global food security

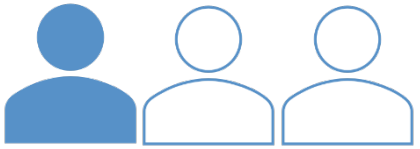
- We produce enough food calories to cover the energy requirements of world population.

- Due to the COVID pandemic, there is a slowly increasing prevalence of **hunger** (768 million) and all forms of **malnutrition**, including:
  - Wasting (7% of children under 5 years)
  - Stunting (22% of children under 5 years)
  - Overweight and obesity (2 billion)

- **2 billion people suffer micronutrient deficiencies** leading to blindness, intellectual disability and early death.

Global food security

Malnutrition is the single largest contributor to disease



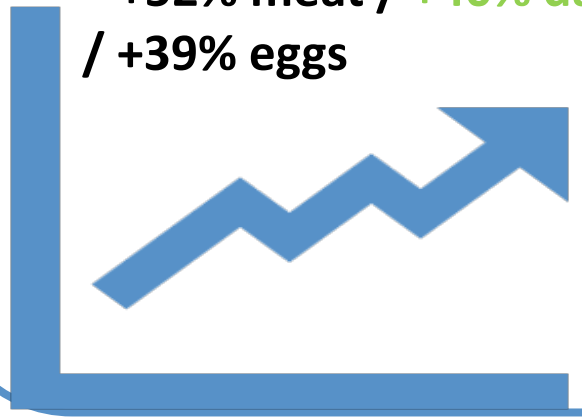
1/3 people affected by premature death, impeding cognitive development and reduced labour productivity

Affordability

- **+ 3 billion people** cannot afford healthy diets
- **+ 1.5 billion people** cannot afford diet providing essential nutrients
- Nutrient adequacy **2.7 times** the cost of subsistence daily energy

Raising global population imply **significant increase in global food production** by 2050 (business as usual scenario)

+52% meat / +40% dairy / +39% eggs

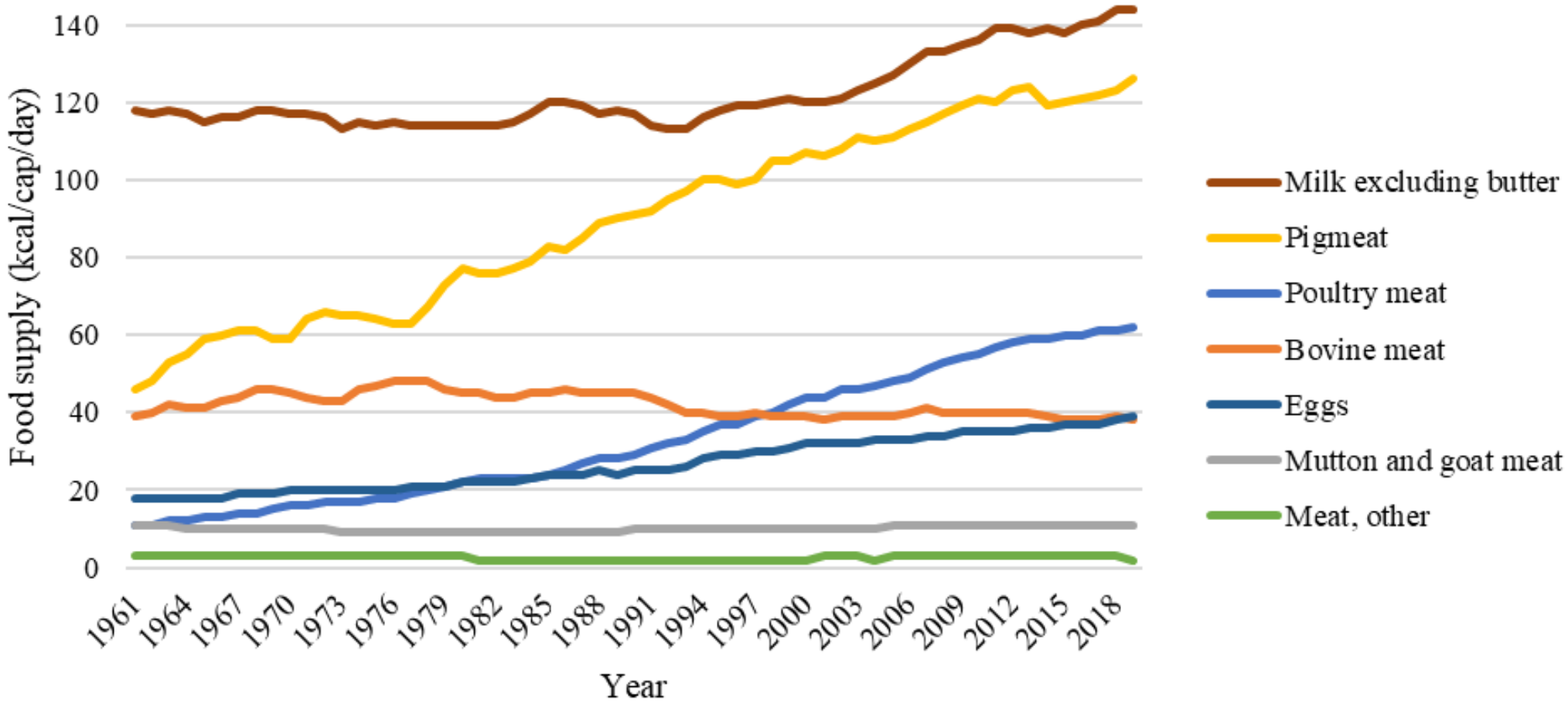


… and food from terrestrial animals?

contribute:

- 18% of global **food energy consumption**
- 34% of global **protein consumption**
  (unique source of high-quality proteins)
- **Bioavailable essential vitamins and minerals**
  (vit B12, A, B3, B6 and D, zinc, selenium, calcium, phosphorus and haem iron)
- Various **bioactive compounds**
  (taurine, creatine, carnosine, conjugated linoleic acids)

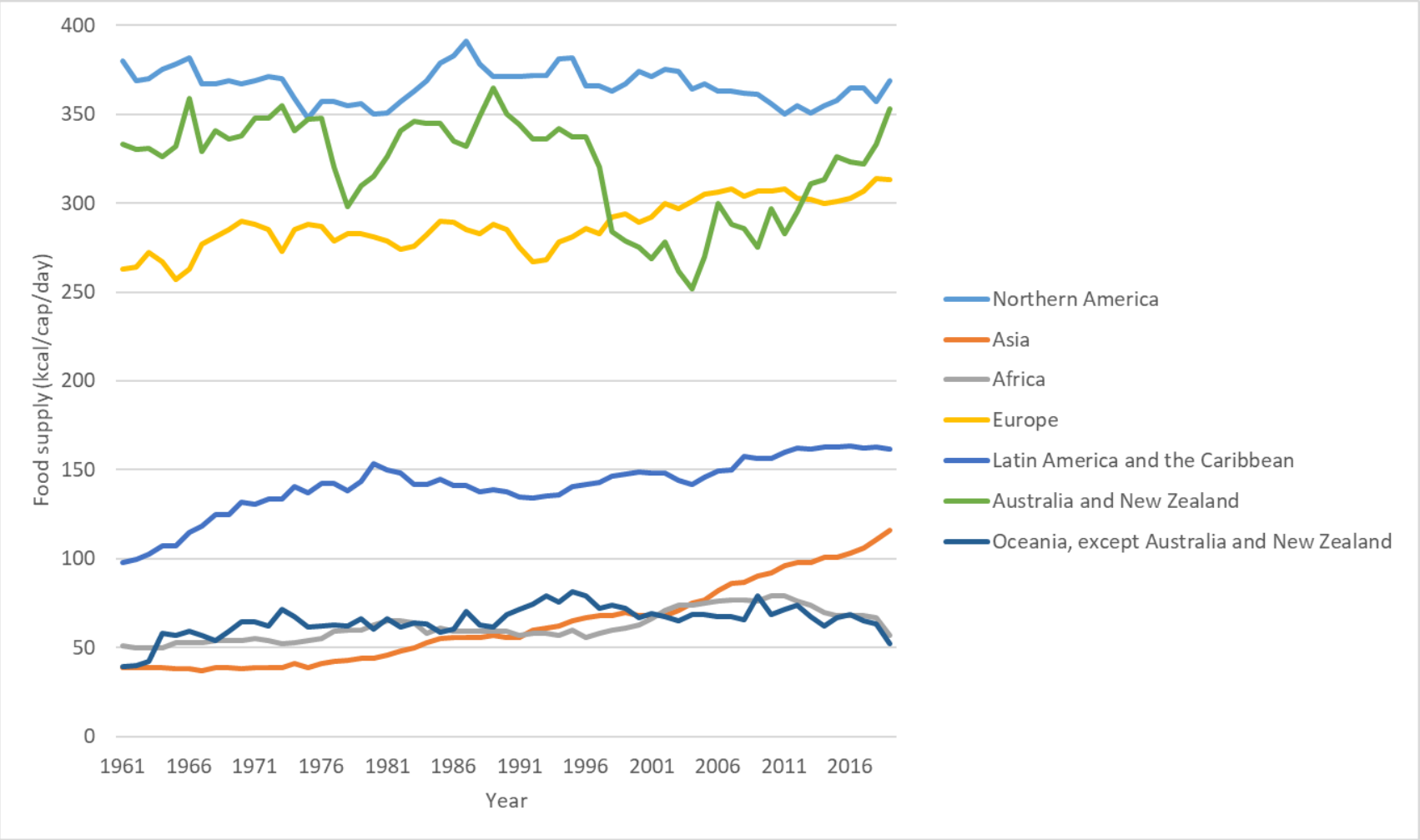
Global food security



Source: FAO. 2022. FAOSTAT. [Cited 10 February 2022]. https://www.fao.org/faostat/en/#home.

Why focus on food security, sustainable food systems, nutrition and healthy diets...

Trends in milk (excluding butter) supply by region



Source: FAO. 2022. FAOSTAT. [Cited 10 February 2022]. https://www.fao.org/faostat/en/#home.

… and food from terrestrial animals?

Reasons for low/no consumption of milk, eggs, meat

- poor availability, accessibility, affordability; price, convenience, marketing and regulation, vendor and product properties;
- dietary patterns, customs, religious taboos;
- lack of knowledge about their nutritional importance.

Benefits and trade-offs of livestock production

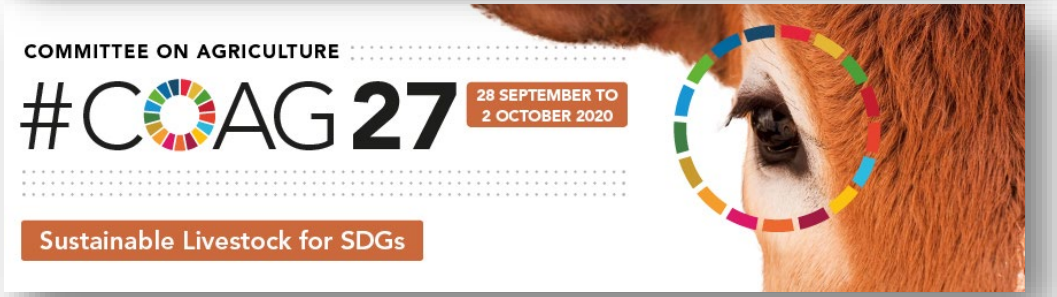
Reasonably well known

Mandate

- **FAO**, a specialized agency of the United Nations, leads international efforts to **defeat hunger and improve nutrition and food security**.

- **Governing bodies** (194 Member Nations): Conference, Council, Technical Committees

- **Committee on Agriculture** (136 Member Nations):
  - Requested FAO to produce a **comprehensive**, **science** and **evidence-based** global **assessment** on the contribution of **livestock** to **food security, sustainable food systems, nutrition and healthy diets**
  - Established in 10/2020 Sub-Committee on Livestock



https://www.fao.org/coag/sub-committee-on-livestock

Scope

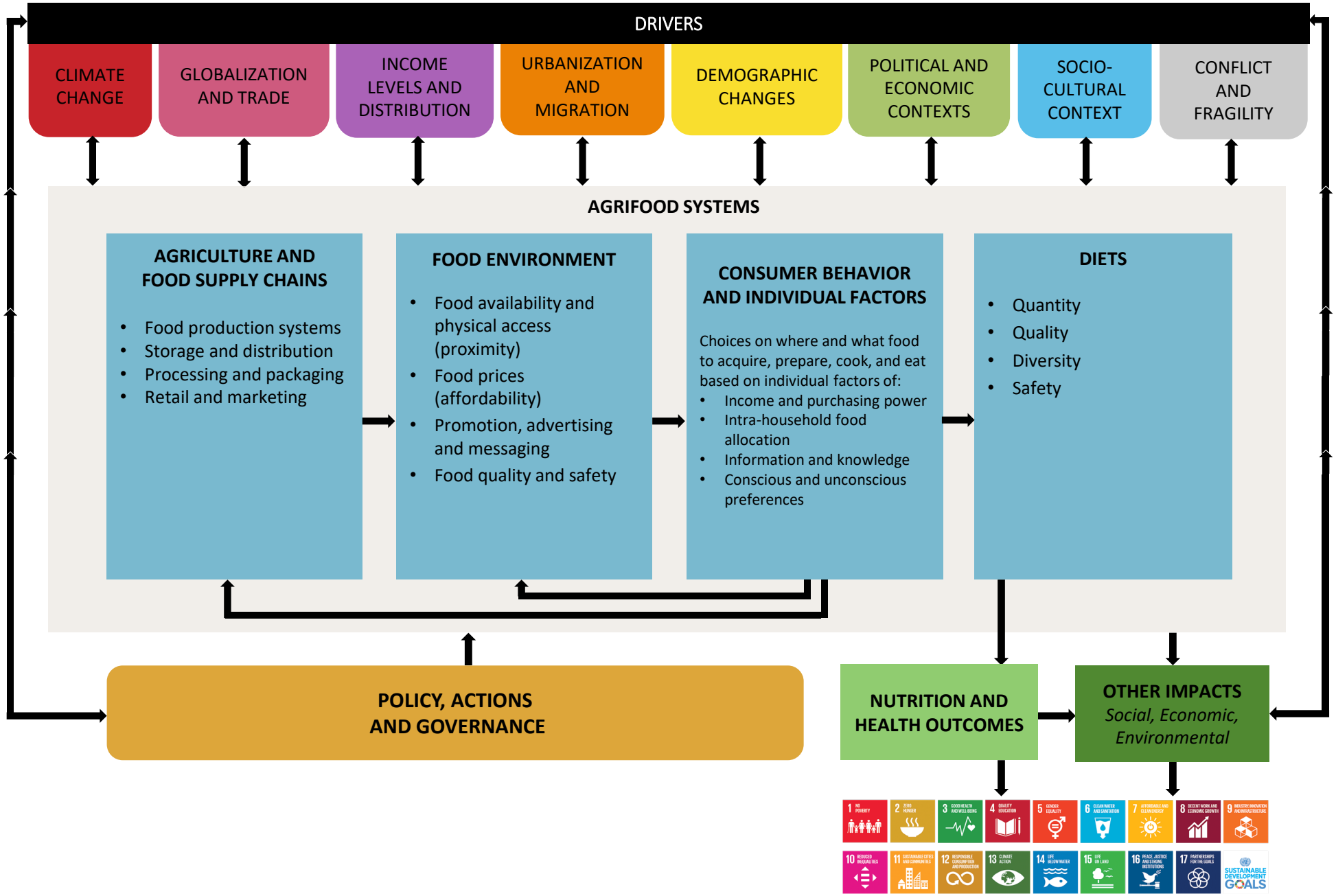
- All major sources of **foods from terrestrial animals** of regional or global importance produced in **livestock production system**:
  - Integrated plant-animal production systems (small to large scale)
  - Specialized livestock production systems (small to large scale)
  - Grazing systems and pastoralism

- Review of **existing evidence** regarding the linkages between livestock and nutrition through a **food systems approach**.

- **Research gaps** identified and **uncertainties** acknowledged.

- **Holistic** view based on **dimensions of sustainability** and **Agenda 2030**.

Approach: framework of agrifood systems for healthy diets



Outputs and time-line

	Output	Date	Governing Body
1	**Contribution** of terrestrial animal source food to healthy diets for **improved nutrition and health outcomes** – an evidence and policy overview on the state of knowledge and gaps	2/2022	COAG-SLC #1
2	**Drivers of supply and demand** of terrestrial animal source food – an evidence and policy overview on the state of knowledge and gaps	2024	COAG-SLC #2
3	Contribution of the **livestock sector** to food security and sustainable food systems – **benefits, constraints, synergies and trade-offs**	2024	COAG-SLC #2
4	**Options** to **sustainably change the livestock sector** through incremental or transformative change to better contribute to food security, healthy diets and nutrition	2026	COAG-SLC #3
Final	**Synthesis**: high-level publication	2027	tbd

Inclusive process

- Led by FAO's **Animal Production and Health Division** and co-led by the **Food and Nutrition Division**, supported by extended team consisting of range of FAO staff from different technical units and decentralized offices, multidisciplinary **Scientific Advisory Committee,** and **external partners**.

- **Required disciplines**: livestock science, human nutrition, human health, food safety, legal, (agricultural) economics, social sciences.

- **Review** of **outlines** and **draft** versions of the four documents

Assessment on livestock sector and food security, sustainable food systems, nutrition and healthy diets

Approach, scope, content and timeline of the Assessment, stakeholder involvement, required resources, key findings of Component Document 1 presented to first session (March 2022)

II. Sustainable livestock for food security, nutrition, and poverty reduction

A. Contribution of livestock to food security, sustainable agrifood systems, nutrition and healthy diets[2]

The Sub-Committee recommended COAG to:

12. call on FAO to promote the use of the 2030 Agenda for Sustainable Development and other multilaterally agreed language and concepts, in particular those agreed by the FAO Governing Bodies, noting that the Sustainable Development Goals (SDGs) are integrated and indivisible and balance the three dimensions of sustainability, when elaborating the Assessment and its component documents;

13. welcome the inclusive process of the first component[3] and request FAO to continue preparing the Assessment with a view to presenting the remaining three component documents[4] to subsequent sessions of the Sub-Committee;

14. encourage Members to consider the impact of livestock policies, programmes and legislative frameworks on nutrition outcomes and to update national food-based dietary guidelines so that they adequately consider terrestrial animal source food and specific nutrient requirements during the life course of humans;

15. encourage FAO to strengthen the collaboration with appropriate partnerships, in particular the Global Agenda for Sustainable Livestock (GASL), Global Research Alliance on Agricultural Greenhouse Gases (GRA) and Livestock Environmental Assessment and Performance (LEAP) Partnership;

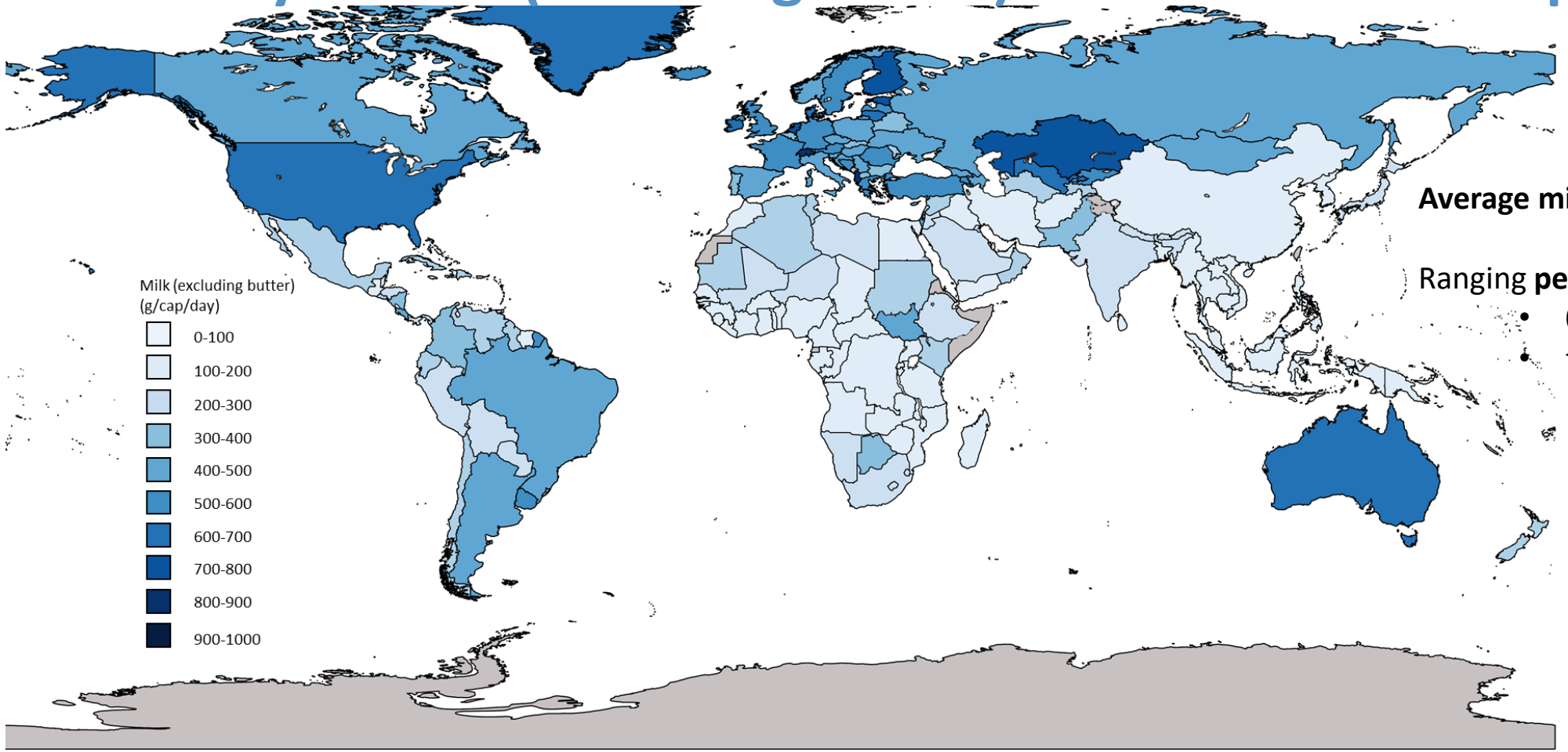
16. encourage Members and other resource partners to support, financially and through the provision of research and data, the preparation of the Assessment, so that the timelines for the completion of the remaining documents are respected;

Component Document 1

- Review of outline
- Review of first draft resulted in more than 1 400 comments
- Revised draft was presented to COAG's Sub-Committee on Livestock at its first session, reviewed by its Members and revised accordingly
- Launch being prepared
- Communication material is being prepared

Will be launched in April 2023

Availability of milk (excluding butter) in national food supplies



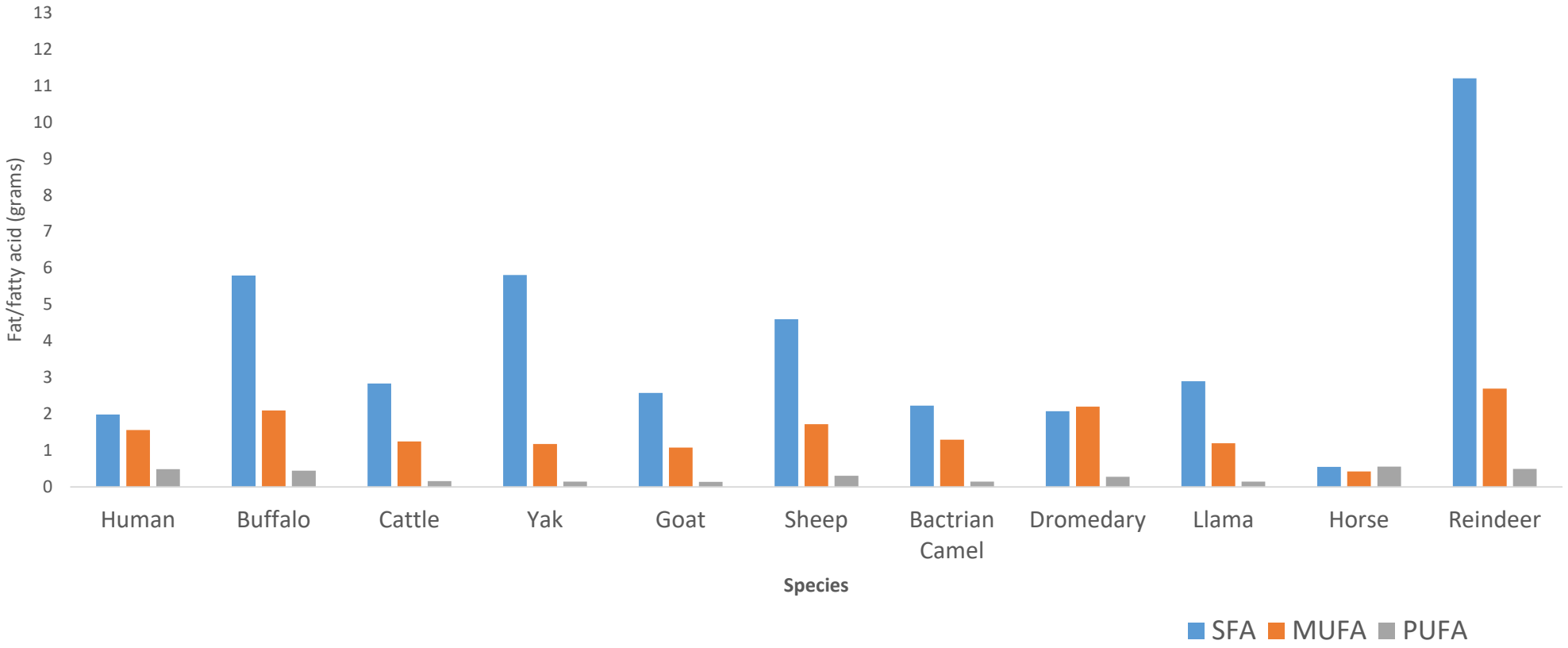
Average milk supply: 226 g/cap/day

Ranging **per capita per year**:

- **0.16 kg** in DRC
- to **338 kg** in Montenegro

Source: FAO. 2022. FAOSTAT. [Cited 22 February 2023]. https://www.fao.org/faostat/en/#home.

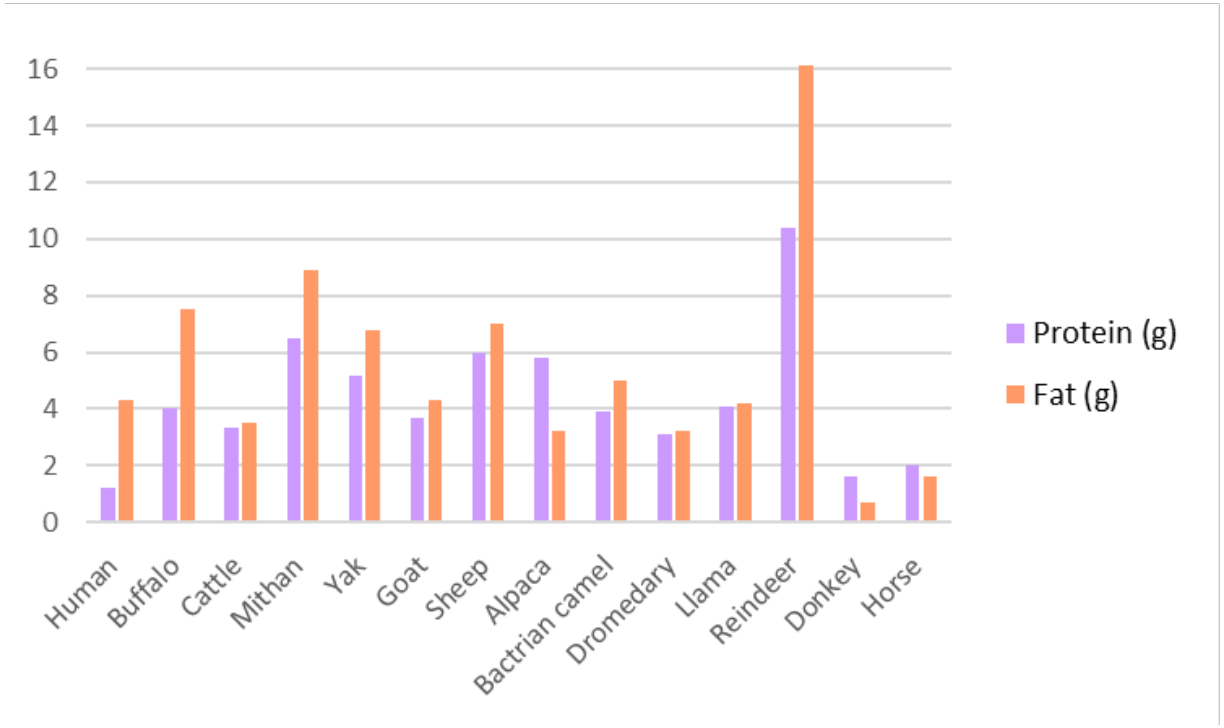
Several factors influence the nutrient content of milk

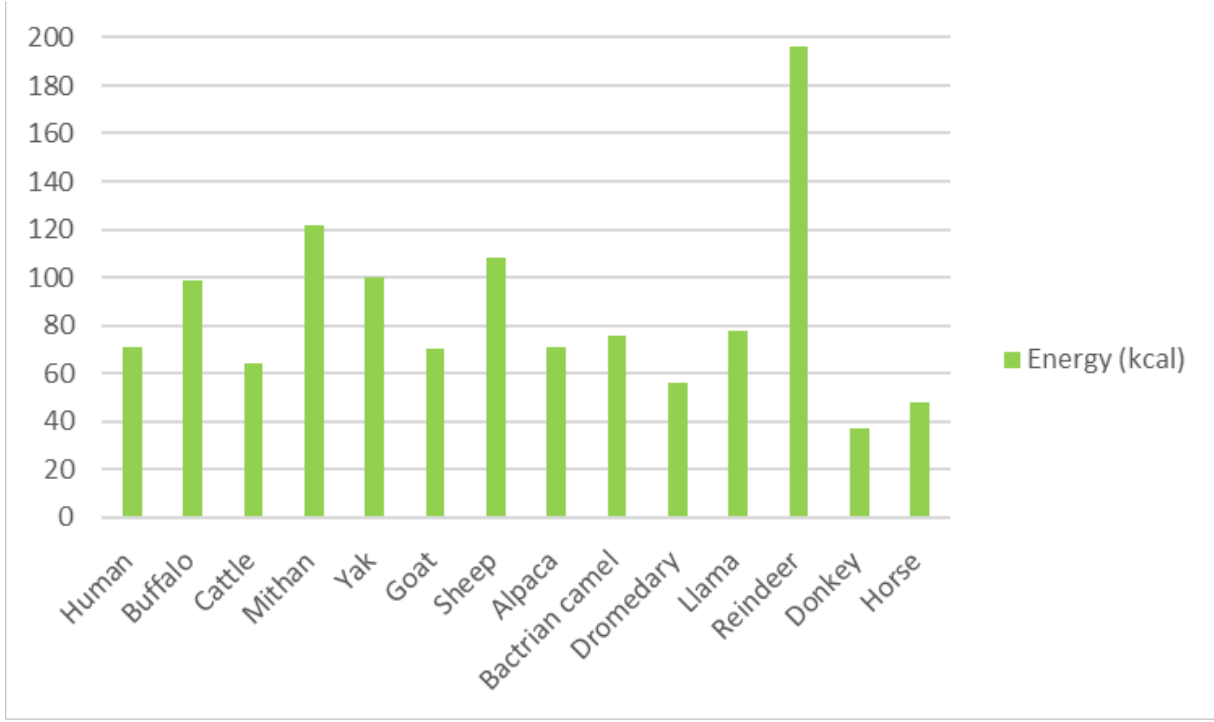


Lipid and fat-soluble vitamins (e.g. Vit A) are highly variable by **species** and **animal diets**

SFA: Saturated fat; MUFA: monounsaturated fatty acids; PUFA: polyunsaturated fatty acids

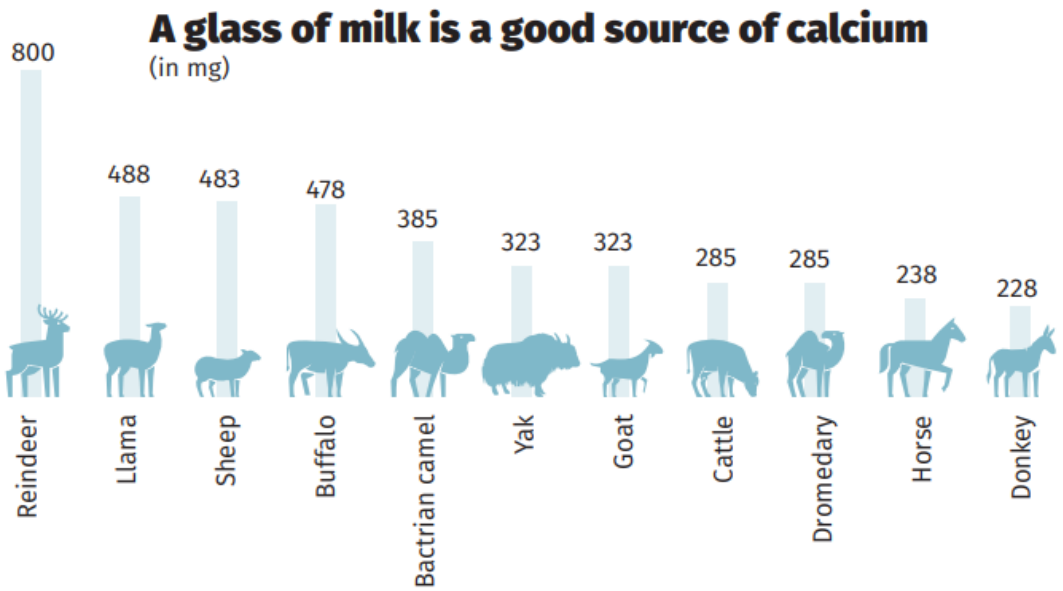
Nutrient average composition of milk from mammalian livestock species and humans

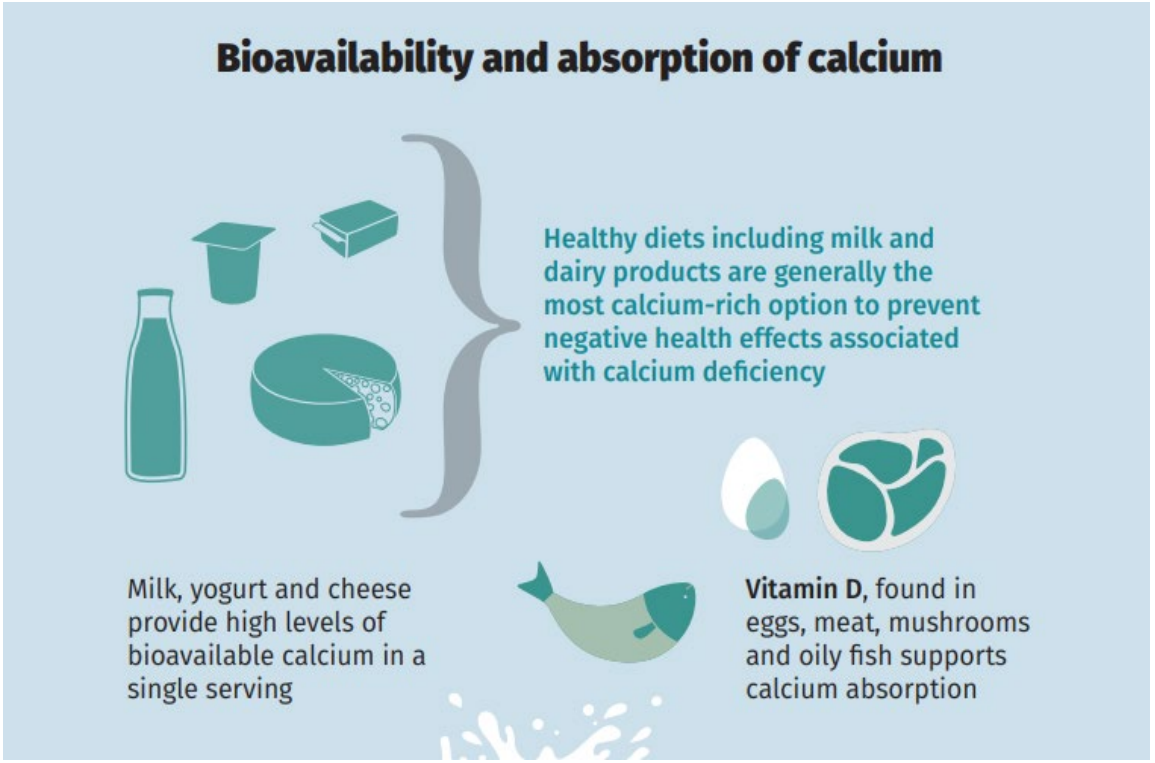




Note: All values per 100 g of milk.
Sources: Australian Food Composition Database. 2021. Australian Food Composition Database. [Cited 3 February 2022]. https://www.foodstandards.gov.au/science/monitoringnutrients/afcd/pages/default.aspx ; Balthazar, C.F., Pimentel, T. C., Ferrão, L. L., Almada, C. N., Santillo, A., Albenzio, M., Mollakhalili, N. et al. 2017. Sheep milk: physicochemical characteristics and relevance for functional food development. Comprehensive Reviews in Food Science and Food Safety, 16(2): 247–262. https://doi.org/10.1111/1541-4337.12250; FoodData Central USDA. 2021.FoodData Central. [Cited 15 December 2021]. https://fdc.nal.usda.gov; Frida, 2021; Medhammar et al., 2012; Tabla de Composición de Alimentos Colombianos, 2021.

Component Document 1: Findings & examples of communication products



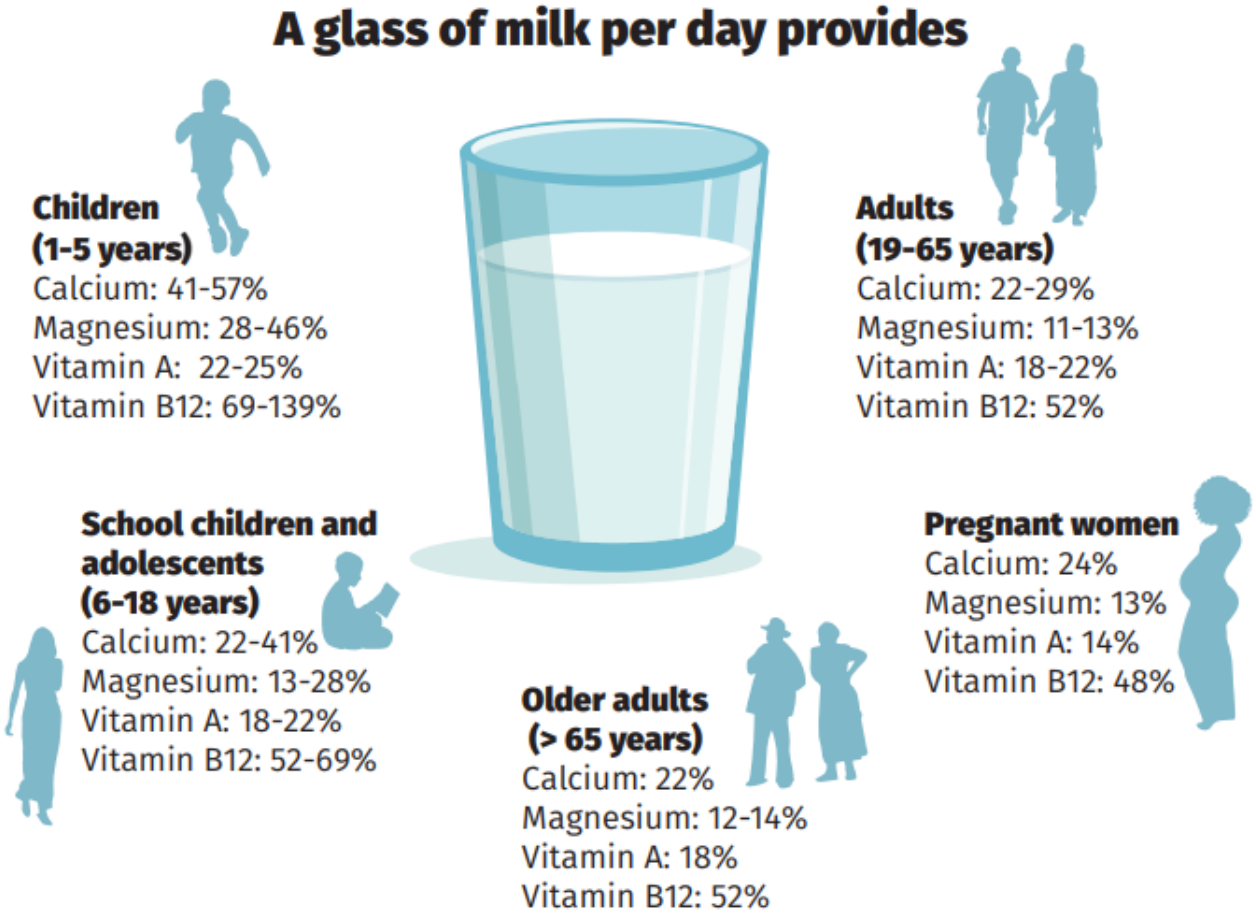


Benefits associated with milk and dairy consumption

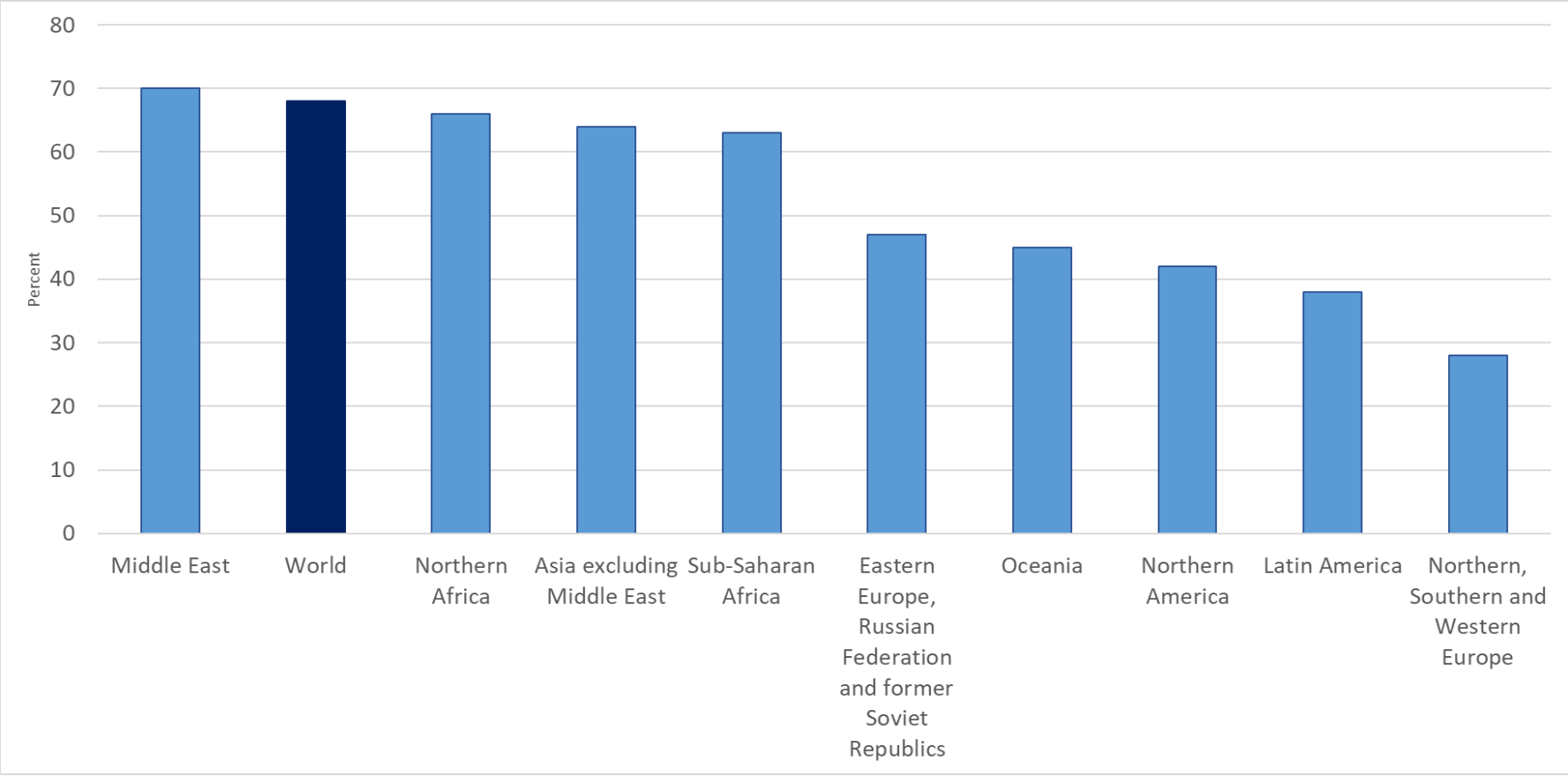
Milk and dairy products (yoghurt and low-fat dairy)

Evidence on **positive** nutrition and health outcomes across *all* life course stages, especially among adults.

Risks: On the association between **milk** consumption and **coronary health diseases (inconclusive)**

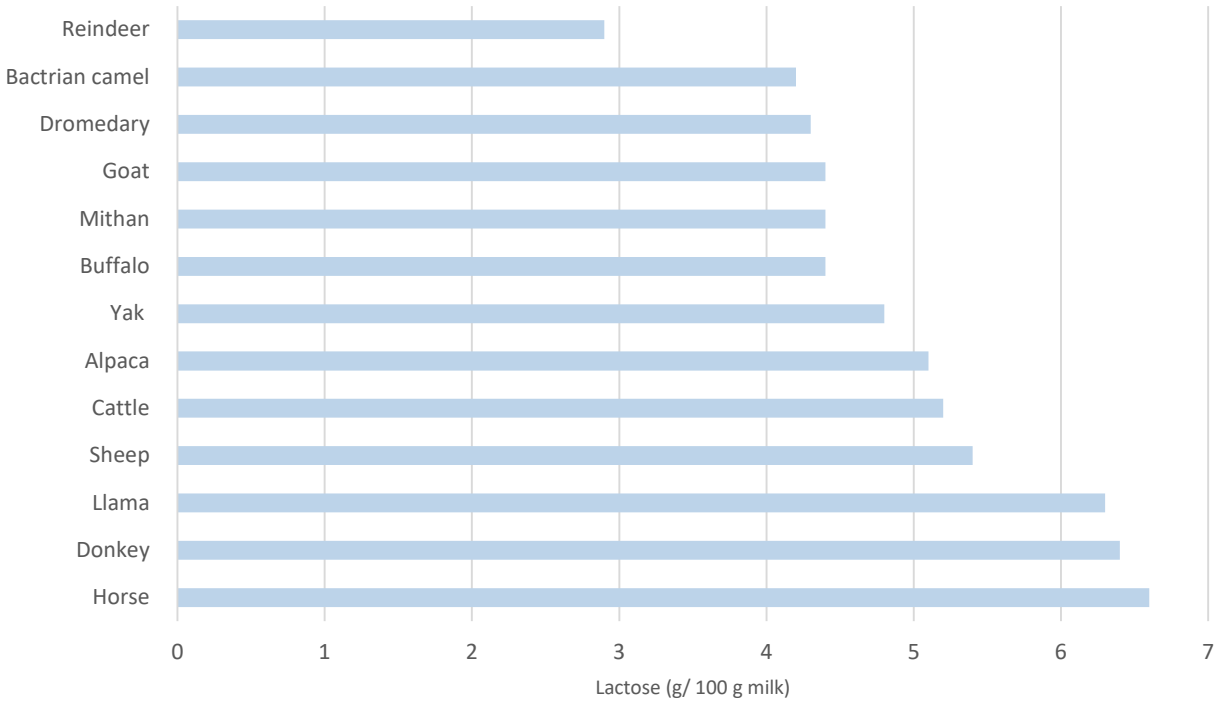


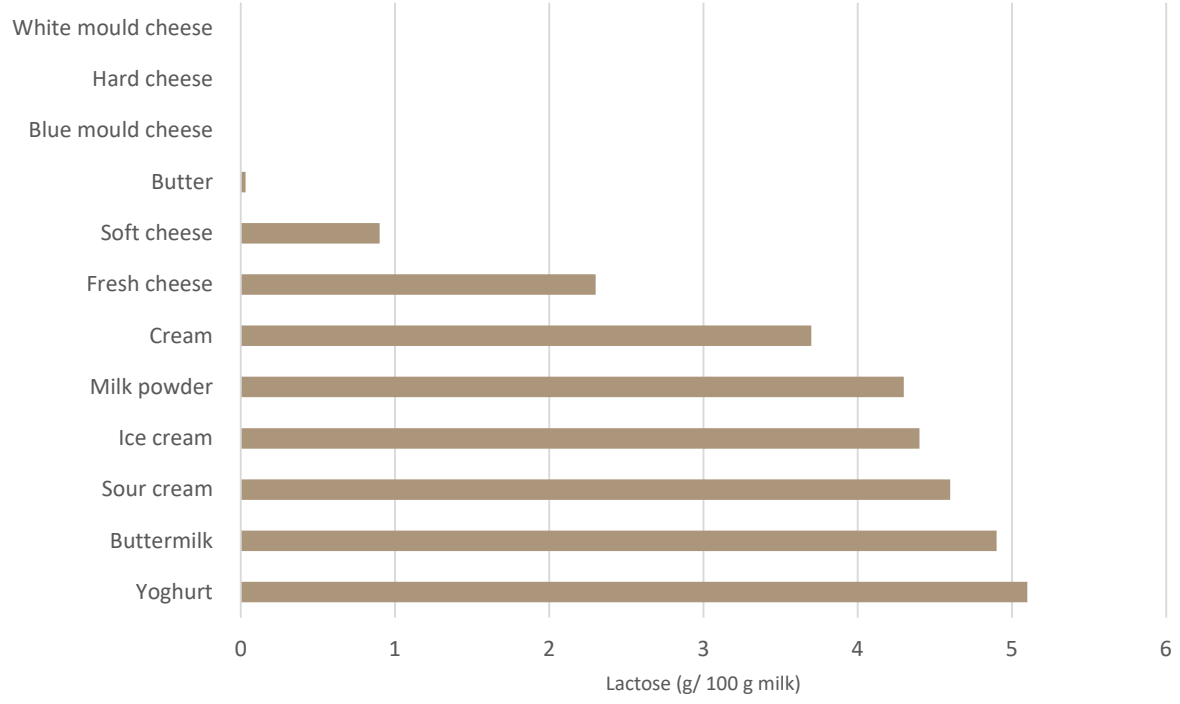
Risks associated with milk and dairy consumption: prevalence of lactose malabsorption



Source: Storhaug, C.L., Fosse, S.K. & Fadnes, L.T. 2017. Country, regional, and global estimates for lactose malabsorption in adults: a systematic review and meta-analysis. The Lancet Gastroenterology & Hepatology, 2(10): 738 746. https://doi.org/10.1016/S2468-1253(17)30154-1

Lactose content in the milk of different livestock species and milk products





Source: extracted from range of food composition databases

TASF in Food-based Dietary Guidelines (FBDGs)

- Available from **95 countries**
- Recommendations primarily linked to **micronutrient intake**, followed by mitigation of diet-related NCDs
- Mostly targeted at **general public**
- **Environmental sustainability considerations** included in FBDG of six middle-high income countries
- **Animal welfare** only mentioned in FBDGs of Denmark and Sweden in relation to food labeling
- Quantitative recommendations linked with **environmental considerations** only in FBDGs of Netherlands

"to limit environmental impact, reduce consumption of meat to a maximum of 500 g per week, consume two to three portions of dairy products per day, more is not necessary and eat fish (only) once a week" (FBDG's, the Netherlands)

"pre-schoolers should have two to three servings of milk and milk products per day" (FBDG's, New Zealand)

Take home messages

1. Increasing prevalence of hunger and all forms of malnutrition; malnutrition single largest contributor to disease

2. Significant increase in food production required to feed growing population

3. Milk supply increased notably after 1990 with Africa and South-east Asia lacking behind

4. Milk and dairy consumption differs significantly between regions and countries

Take home messages – *cont.*

5. Humans consume milk and dairy products from multiple animal species varying in composition mostly influenced by feed and feeding systems

6. Milk and dairy products provide high-quality proteins, important fatty acids and calcium, magnesium, phosphorous, potassium, zinc, selenium and vitamins A and B12

7. Evidence on health benefits of milk and dairy consumption across all life course stages

8. Milk and dairy well recognized in policy documents

How can you engage in the Assessment?

- **Indicate** your interest to be added to our **mailing list** for consultative process or contribute your **review**.

- Send our way:
  - **Relevant references**.
  - Information about **relevant initiatives**.
  - **Recommendations** for contributors.

Contact: livestock-nutrition-assessment@fao.org

Thank you!

…. looking forward to the discussion

Inclusive process

1. Multidisciplinary **Scientific Advisory Committee**

   - Selected based on applications based on scientific excellence and independence, stakeholder representation, geographic representation and coverage of all required disciplines and areas of expertise

   - Review of outlines and draft versions of the four documents (survey)

   - Discuss annotated outlines and draft versions

2. **Broad consultation process**

   - Review of outlines and draft versions of the four documents (survey)

Component Document 1

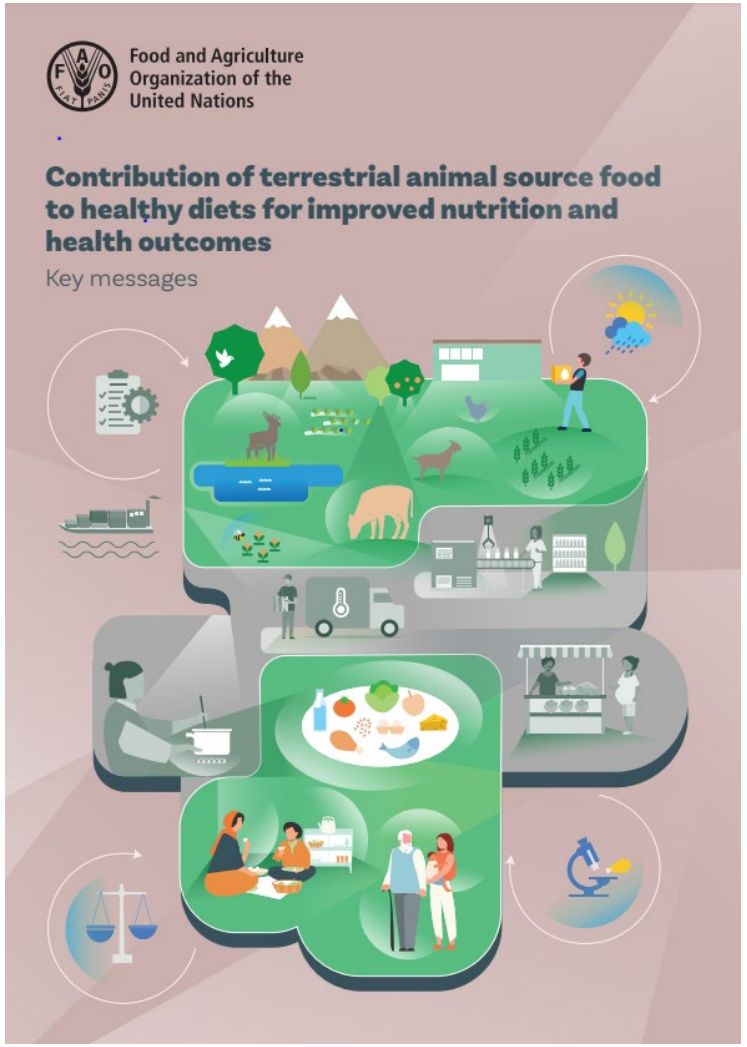
Chapter 1: Nutrition situation; TASF availability in food supply and consumption

Chapter 2: Nutrient composition and value of TASF; factors influencing nutrient composition

Chapter 3: Effects of TASF on health and nutrition outcomes over the life course; current policies

Chapter 4: Food safety and food-borne diseases

Chapter 5: Emerging topics related to TASF



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