



Food and Agriculture
Organization of the
United Nations



Milan Urban Food Policy Pact Monitoring Framework

March 2021 version

Indicator 10: Individual average daily consumption of meat

MUFPP framework of actions' category: Sustainable diets and nutrition

Note this is not a normative indicator on recommended daily intake of meat. It will monitor meat consumption in order to discuss sustainable and healthy diets from a health and environmental perspective.

Overview table

MUFPP Work stream	Sustainable Diets and Nutrition
MUFPP action	Promote sustainable diets (healthy, safe, culturally appropriate, environmentally friendly and rights-based) through relevant education, health promotion and communication programmes, with special attention to schools, care centres, markets and the media.
What the indicator measures	Individual average daily consumption of meat
Which variables need to be measured / what data are needed	<ul style="list-style-type: none"> ▪ Meat categories (ruminants, pork, poultry, fish, etc.) ▪ Red meat vs processed meat ▪ Socioeconomic variables
Unit of measurement <i>(i.e. Percentages, averages, number of people, etc.)</i>	Weight of meat consumption If desired, the following could (also) be measured: Share of expenditures on meat of total food expenditures).
Unit(s) of Analysis <i>(i.e. people under 5 years old, etc.)</i>	Grams of meat per day per capita OR annual kilograms of meat consumption per capita
Possible sources of information of such data	<ul style="list-style-type: none"> ▪ Agriculture departments (meat production data) ▪ Health departments or academic institutions (household dietary surveys)
Possible methods/tools for data-collection	<ul style="list-style-type: none"> ▪ Data analysis from existing reports ▪ Household dietary or consumption surveys
Expertise required	Data analysis, survey design and implementation
Resources required/ estimated costs	

Specific observations	The specific categories of animals included in meat consumption can vary, in particular, whether fish are included. FAO defines meat as all animals used for food. However, the OECD includes only beef, veal, pig, poultry and sheep. Aggregate production (carcass mass availability) or retail data are often used as proxies for per capita consumption. The accuracy of production data as a consumption proxy can be limited in countries where the population is small but meat exports are high.
Examples of application	<p>The School of Public Health at the University of São Paulo conducted 24-hour diet recall surveys among residents in 2003 and 2008 to track trends in meat consumption. Data were collected from adolescents, adults and seniors in São Paulo. The daily mean of red and processed meat consumption was 100 g/day in 2003 and 113 g/day in 2008. Excessive red and processed meat consumption was observed in almost 75% of the subjects, especially among adolescents in both surveys. Beef represented the largest proportion of meat consumed, followed by poultry, pork and fish in both surveys¹.</p> <p>The City of Ghent monitor meat consumption through biannual market research with questionnaires sent out to thousands of citizens in Ghent, Flanders, other Belgian cities, etc. This allows them to see the evolution for Ghent and to compare the city to other regions and cities around Ghent. Total costs for their 2016 survey (including Ghent and Brussels areas) were 6 500 Euro.</p>

Rationale/evidence

Meat/animal sourced protein can be part of a balanced diet contributing valuable nutrients that are beneficial to health. Meat and meat products contain important levels of protein, vitamins, minerals and micronutrients which are essential for growth and development. Further processing of meat offers the opportunity to add value, reduce prices, improve food safety and extend the shelf-life. This can result in increased household income and improved nutrition. While the per capita consumption of meat in some industrialised countries is high, per capita consumption below 10 kg in developing countries must be considered insufficient and often leads to undernourishment and malnutrition. It is also estimated that more than 2 billion people in the world are deficient in key vitamins and minerals, particularly vitamin A, iodine, iron and zinc. Deficiencies occur when people have limited access to micronutrient-rich foods such as meat, fish, dairy, fruit and vegetables. These sources are usually combined in the daily food intake, but in regions where not all of them are readily available, intake of the others needs to be increased. It is for these reasons that some cities (like Nairobi, Kenya and Quito, Ecuador promote livestock production and consumption as an important part of their urban agriculture and urban food security programmes).

Although nutrients from animals may be of higher quality or more readily absorbed than vegetable sources, it is possible to have a healthy vegetarian diet. The steadily growing world population and increasing incomes creates higher demand for meat, but at the same time leaves limited space for expansion in livestock production. Therefore the maximum utilisation of existing food resources becomes even more important².

Global meat consumption and production patterns pose a threat to the natural environment by contributing to climate change, resource depletion and the extinction of species. The food system as a whole accounts for an estimated 20-30% of the global greenhouse gas emissions while, within food consumption patterns, meat and dairy products are the main contributors to environmental impacts.

¹ de Carvalho, A. M., César, C. L. G., Fisberg, R. M., & Marchioni, D. M. (2014). Meat consumption in Sao Paulo–Brazil: trend in the last decade. *PLoS one*, 9(5), e96667.

² FAO (2014). Animal Production and Health: Meat consumption. Agriculture and Consumer Protection Department. Available from <http://www.fao.org/ag/againfo/themes/en/meat/background.html>.

Among the different types of meat, beef has the largest and chicken the smallest environmental impact in terms of climate change, land use and fossil fuel depletion. Given a growing population and an increase in wealth, the demand for food and meat is predicted to increase by 70% by 2050 for food and by 2030 for meat³. With rapid global urbanisation, it will be important for cities to gauge trends in meat consumption to inform health and environmental strategic plans. It is in this context that this indicator monitors meat consumption as part of environmentally sustainable diets.

Glossary/concepts/definitions used

Meat: The flesh of animals used for food (including beef, poultry, pork, fish and others)⁴.

Preparations

A meeting should be organised with all staff who will be involved in this activity to:

- Familiarise them with meat consumption assessments
- Agree on the objectives and scope of the analysis and data collection requirements
- Define the methodology to be applied for data collection and analysis, and
- How to coordinate the activities.

Data Collection and Analysis

FAO figures for meat consumption are generally based on carcass mass availability (with “carcass mass” for poultry estimated as ready-to-cook mass), divided by population⁵. The amount eaten by humans differs from carcass mass availability because the latter does not account for losses, which include bones, losses in retail and food service or home preparation (including trim and cooking), spoilage and “downstream” waste, and amounts consumed by pets (compare dressed weight)⁶.

For a detailed methodology of population meat consumption data collection and analysis, please refer to the following resources:

FAOSTAT: Food and Agriculture Data. Available from <http://www.fao.org/faostat>.

OECD Data: Meat Consumption. Available from <https://data.oecd.org/agroutput/meat-consumption.htm>.

Cities may also decide to add a question on meat consumption in other sustainable diets and nutrition consumption surveys or design a specific survey on the topic. An example survey used in Ghent is available in Dutch and can be obtained from the city of Ghent⁷.

References and links to reports/tools

FAO (2013). Current Worldwide Annual Meat Consumption per capita, Livestock and Fish Primary Equivalent. Food and Agriculture Organization of the United Nations. Available from <http://www.fao.org/docrep/005/y4252e/y4252e05b.htm>.

³ Van Mierlo, K., Rohmer, S., & Gerdessen, J. C. (2017). A model for composing meat replacers: Reducing the environmental impact of our food consumption pattern while retaining its nutritional value. *Journal of Cleaner Production*, 165, 930-950. <https://www.sciencedirect.com/science/article/pii/S0959652617315330>

⁴ FAO (1994). Definition and Classification of Commodities. Available from <http://www.fao.org/waicent/faoinfo/economic/faodef/fdef17e.htm>.

⁵ FAOSTAT. (Statistical database of the Food and Agriculture Organization of the United Nations. Methods and Standards. http://faostat3.fao.org/mes/methodology_list/E.

⁶ Loss-adjusted food availability documentation. United States Department of Agriculture, Economic Research Service. [http://www.ers.usda.gov/data-products/food-availability-\(per-capita\)-data-system/loss-a-adjusted-food-availability-documentation.aspx](http://www.ers.usda.gov/data-products/food-availability-(per-capita)-data-system/loss-a-adjusted-food-availability-documentation.aspx).

⁷ Please contact: katrien.verbeke@stad.gent

FAO (2014). Animal Production and Health: Meat consumption. Agriculture and Consumer Protection Department. Available from <http://www.fao.org/ag/againfo/themes/en/meat/background.html>.

Gerber, P. J., Steinfeld, H., Henderson, B., Mottet, A., Opio, C., Dijkman, J. & Tempio, G. (2013). Tackling climate change through livestock. Food & Agriculture Organization.

OECD/FAO (2017), OECD-FAO Agricultural Outlook 2017-2026, OECD Publishing, Paris.
http://dx.doi.org/10.1787/agr_outlook-2017-en

Steinfeld, H., Gerber, P., Wassenaar, T. D., Castel, V., & de Haan, C. (2006). Livestock's long shadow: environmental issues and options. Food & Agriculture Organization.

Van Mierlo, K., Rohmer, S., & Gerdessen, J. C. (2017). A model for composing meat replacers: Reducing the environmental impact of our food consumption pattern while retaining its nutritional value. *Journal of Cleaner Production*, 165, 930-950.