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Letter to the Editor

# Do animal source foods always ensure healthy, sustainable, and ethical diets?

We thank Leroy et al. (2022) for settling the discussion arena on the role of animal farming and animal source foods for healthy, sustainable, and ethical diets. It comes at a perfect time, when the concurrence of multiple interconnected crises (ecological, climatic, public health, social inequality, war, and energy) challenges our lifestyle and agrifood system. We support a scientific debate away from discourses biassed by ideologies and interests, which commonly dominate this burning topic. The authors go over the main criticisms of animal source foods, grouping them into three domains: health, environment, and ethics. They highlight where criticisms lack sound foundations and which issues should still concern the animal sector. Yet, given the potential repercussion of their review, we consider that some of the points raised by the authors need to be nuanced to enrich the scientific and public debate.

The first point refers to environmental sustainability and how the authors handle animal farming system differentiation. Despite Leroy et al. stating that "the true challenge is to promote best practices and limit harm", they do not specify the drawbacks and the benefits of different farming systems. Avoiding clear differentiation among farming systems in the key arguments of a position paper, that supports animal farming against criticisms, leads to the idea that all types of systems are similar. However, it is widely known that different systems provide contrasting environmental, economic, and ethical outcomes (Rivera-Ferré et al., 2016). The authors only highlight grazing and silvopastoral systems' virtues considering their low water footprint, low methane contribution and high circularity. However, critical readers may consider not drawing attention to other systems, or differentiating them using only the above arguments, as an attempt to greenwash the whole animal production by using the environmental benefits of a small part of those. Further, grazing systems just produce around 9% of global meat (Rivera-Ferré et al., 2016) or 5% of total terrestrial animal source food, which increases to 50% if we consider the heterogeneous category of mixed crop-livestock systems (Garnett et al., 2017). Moreover, although grazing and some mixed crop-livestock systems are usually associated with sustainable farming in some regions (e.g., High Nature Value farmland in the European Union), they are also associated with deforestation, land degradation, and lack of production efficiency in others (Herrero et al., 2013). In contrast, industrial systems (understood as systems disconnected from the agroecosystems where farms are located, following the ruling classification proposed by Seré and Steinfeld, 1996) produce the bulk of animal source foods. However, they strongly depend on fossil fuels which, together with the consequences to the above-mentioned crises, question their future viability (Delannoy et al., 2021). Consequently, a lack of clear differentiation among farming systems is not only unfair against farmers implementing sustainable practices but also gives rise to the impression that all animal production systems provide social-ecological services or have no or low negative impact.

Regarding ruminants' GHG emissions, the authors argue that methane is part of natural biogeochemical cycles, but methane only belongs to the natural cycle if animal feeds are produced without using fossil fuels (or other carbon stocks), degrading soils, or causing deforestation (Garnett et al., 2017). Most ruminant production systems do not meet these conditions (Garnett et al., 2017; Rivera-Ferré et al., 2016). Therefore, accounting for livestock methane emission as part of the natural cycle should be carefully considered, in so far as industrial systems are highly dependent on fossil fuels (despite having increased their efficiency in resources' use and reduced their emissions per unit of product in some world regions; e.g., Naranjo et al., 2020), and grazing systems can be involved in deforestation or land degradation processes (Herrero et al., 2013).

The second point relates to the role of animal source foods in healthy diets. Leroy et al. focus their arguments on the direct impacts of animal source foods on human health (through their nutrients and chemical composition), and we agree with them when they argue that these effects are usually unclear and often confounded. However, they exclude from their argumentation the full range of indirect impacts associated with all the processes involved in animal food production. For a comprehensive reflection on the impact of animal source foods on human health, we miss the inclusion of how the use of antibiotics in industrial farming systems plays a role in the appearance of antimicrobial resistance (Koch et al., 2017), and the existing relationship between industrial animal systems and the appearance of zoonoses, which are cornerstones of human health (Karesh et al., 2012). Although public policies have led to a significant reduction in antibiotic use, antibiotic resistance has reduced lower than expected, partly due to other human uses, indicating the need for a One Health approach to deal with healthy diets and public health (ECDC, EFSA and EMA, 2021).

The last point relates to the ethics of eating animal source foods. What is an ethical diet? The answer would probably depend on which ethics school of thought the respondent follows. Therefore, entering the discussion of which ethical approach is best, or trying to invalidate others' ethical positions, does not help move the debate beyond ideological positions. Most of the criticisms to animal source foods that Leroy et al. discussed are "extreme" positions (e.g., imposing veganism on society or the total elimination of animal killing) that do not correspond with the thoughts of most consumers (Macdiarmid et al., 2016 and references therein). In

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addition, the authors state that animal source food consumption is disincentivised by authorities and policymakers, which seems to be one of the reasons encouraging their study, with no mention of the large budget of public resources supporting intensive agriculture and livestock industries (FAO, UNDP and UNEP, 2021).

Leroy and colleagues argue that animal source foods can be an essential component of sustainable diets and can contribute to feeding the increasing population. We believe the discussion should assume that production and industrial systems, as well as diets, need to be transformed worldwide to help deal with the ecological, climatic, public health, social inequality, war, and energy crises. The scientific and public debate should focus on production systems and not only on specific animal source products or animal species. Society needs to know more about how foods are produced, distributed, and consumed to get an informed opinion. These aspects include not only the multiple positive and negative impacts and trade-offs but also how different systems vary in their dependence on non-renewable resources such as fossil fuels. Being better informed, we can contribute to placing the agrifood system within a socially and ecologically sustainable pathway.

## Ethics approval

Not applicable.

## Data and model availability statement

Not applicable.

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## Declaration of interest

The authors declare no competing interests.

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