The value of animal-sourced foods

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Under the current political and regulatory environment, animal-sourced foods will remain part of the least-cost nutritious diet in the United States.

The consumption of animal-sourced foods (ASF) is controversial, drawing debate between defenders and critics of livestock farming, and capturing public and media attention. This debate is important for the pressing challenges that globalisation poses to our health and our planet. ASF are central components of human diets, and therefore many regulatory bodies should employ clearer evidence of the multiple impacts of different diets.

Chungchunlam and colleagues developed an optimisation model that selects food items that meet the nutrient requirements of a healthy adult in the USA. The model finds the minimum cost food pattern, within constraints of certain nutrients and number of servings. This study tested whether the cheapest diet would include ASF and how this diet would compare to plant-based diets. The least-cost food pattern was found to contain a large amount of milk (703 g per day), a generous portion of legumes, and carbohydrate-rich foods such as rice, tortillas, and bread. Given the current prices of cow's milk, this product seems a good choice to save on food bills and to obtain protein and precious vitamins and minerals. Because of the geographic focus of this study, the least-cost food pattern includes few food types and a surplus of carbohydrates. ChooseMyPlate, the US government dietary guideline, recommends consumers to fill half of their plates with vegetables and fruits; this recommendation was not included in the analysis, and could have led to a different least-cost diet.

The value of ASF is at the centre of this analysis and the debate. Value is a social construct that reflects what is important and useful to society. The price of a product is the result of a market environment with regulations and imperfect competition**.** Prices do not always reflect value. In many high-income countries like the USA, the prices of ASF are influenced by government support[2] with subsidies financing the production of grains – a substantial amount of which is fed to livestock[3]. If society would decide to act upon climate change, the price of ASF should increase to reflect its high environmental cost. Chungchunlam and colleagues call for an examination of environmental impact against nutrient density and sociocultural value of ASF. Close scrutiny is indeed required to design interventions that are also effective to mitigate climate change. Brambila-Macias et al.[4] have showed

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that regulation of food advertisements and information campaigns to reduce unhealthy eating have had meagre effects on dietary choices. Policies that target the market through fiscal measures or food standards tend to be more effective, though disliked by the public[5].

Attaching the right value to ASF would imply recognising their nutritional properties and cultural role, accounting for low environmental impact, and ensuring animal welfare. This value would be reflected in a just price. Dairy farmers in many countries struggle to make ends meet, and without financial support many would go bankrupt. In particular, the right value of milk is, arguably, that associated with small herds of cows producing a high quality product while enjoying high levels of wellbeing. This scenario would likely be valued by consumers, and would allow highly nutritious plant-based products like soya to be consumed by humans and not animals. Increasing the quality of plant-based alternatives to ASF can increase diet diversity and help moderate the consumption of carbohydrates.

From a health and environmental sustainability perspective, excluding ASF from people's diets may not be needed, and there are co-benefits from livestock farming which include their positive effects on plant diversity[6] and on local economies[7]. Chungchunlam and colleagues show that small increases in the prices of ASF might influence the choice of other food items, adding diversity and marginally increasing the daily cost of food (from $1.98 to 2.14 per adult). A drastic reduction of ASF in our diets might lead to the purchase of more expensive food alternatives. This could change as innovation in the agrifood industry leads to lower prices for plant-based products. The conclusions of the study cannot be generalised as they apply to food prices in the USA in 2009-2010, with a large gap in price between cow milk (about $1.0 per litre) and soya milk ($1.9 per litre). In the UK, for instance, this gap is smaller, with cow milk (£0.48 per litre) and soya milk (£0.59 per litre) being traded at similar prices in some supermarkets. Soya milk is an increasingly accepted alternative to cow milk as continuous technological advances improve its sensory properties[8]. Soya milk has protein concentrations similar to cow milk (3.5-3.7%) and is a more stable product than other plant-based milks, which explains why soya-based products have been the most common substitutes[9]. Additional small substitutions in diets could bring sizeable environmental benefits[10].

The debate between supporters and critics of livestock farming is likely to continue. Science has an important role to play in assessing proposed solutions. Policies aimed at just prices must be aligned with interventions to raise public awareness around the value of ASF as nutrient-dense foods to be consumed with moderation. Further research on alternatives to feed the human population with lower impacts is required. A just price will cover the costs and generate reasonably good returns, removing the perception of low value that might influence consumption. These prices will reflect the high nutritional value of ASF and embed some of the externalities resulting from their production[10].

References

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Photograph caption: A small herd of grazing cows in a small farm of NW England. Credit: Mariana Rufino