

The Role of National Food-Based Dietary Guidelines for Animals

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Description

National Food-Based Dietary Guidelines (FBDGs) are generally designed from a human health perspective and often disregard sustainability aspects. Circular food production systems are a promising solution to achieve sustainable healthy diets. In such systems, closing nutrient cycles where possible and minimising external inputs contribute to reducing environmental impacts. This change could be made by limiting livestock feed to available Low-Opportunity-Cost Biomass (LOCB). We examined the compatibility of national dietary guidelines for animal products with livestock production on the basis of the feed supplied by available LOCB.

In this study, the oils obtained from melon and pumpkin seeds, considered to be by-products of the food industry, were used to prepare lamb meat burgers. The substitution of each of the emulsified seed oils for animal fat was carried out in three concentrations. The burgers obtained show a reduced percentage of polyunsaturated fatty acids, as well as an increased concentration of vitamin E, with differences depending on the oil emulsion used. To evaluate the acceptance of reformulated burgers, a discrete choice experiment was also used to identify the effects on consumers' purchasing attitudes of using a "with seed oil" label. The results obtained suggest that this label would not lead to greater acceptance of the product, even revealing a negative willingness to pay. In light of the results, the use strategies emphasizing the lower fat content of these burgers ("reduced fat content") or their higher content of polyunsaturated fatty acids is proposed.

The nutritional adequacy of both animal-based and plant-based low protein diets (LPDs) and moderate protein diets that are recommended for patients with chronic kidney disease have not been well examined. We therefore analyzed the nutrient content of three representative LPDs and moderate protein diets (lacto-ovo vegetarian, omnivorous, and vegan) containing foods that are likely to be prescribed for nondialyzed chronic kidney disease or chronic dialysis patients in the United States to determine the nutritional adequacy at different levels of protein intake.

Some individuals adopt vegetarian or plant-based diets to improve their health. Observational evidence suggests diets composed of higher amounts of animal-source foods (ASFs) are associated with increased risk for disease and early mortality. In many of these studies, those who ate fewer animal-source foods

reported fewer disease risk factors and unhealthy behaviors, which could indicate bias.

As the human population increases globally, the food animal industry has not been spared from the monumental demand for edible animal products, particularly meat. This has necessitated the simultaneous expansion of the productivity of the animal sector to meet the ever-growing human needs. Although antibiotics have been used in food animal production with commendable positive impacts on their growth performance, their sole contributive factor to the increasing incidence of antimicrobial resistance has ushered the strict restrictions placed on their use in the animal sector. This has handed a setback to both animals and farmers; thus, the intense push for a more sustainable antibiotic alternative for use in animal production.

The production of human food affects the environment in multiple ways, including its associated resource use that alters global biomass and nutrient cycles, its effects on climate change, and biodiversity loss. Unbalanced diets that are low in fruit and vegetables, and high in red and processed meat are a major risk factor for several non-communicable diseases, such as cardiovascular diseases, stroke, cancer, and diabetes. In high-income countries, shifting consumption towards plant-based diets is often recommended, to decrease environmental impacts of food consumption and to improve human health benefits of diets. This recommendation is due to the generally favourable environmental effects of plant-based food compared with animal products as well as the increased risk for diet-related diseases in the case of low fruit and vegetable consumption, and high red and processed meat intake. Food-Based Dietary Guidelines (FBDGs) are key references for healthier food choices. Although environmental concerns are increasingly addressed in FBDGs, for example, in the 2019 eat lancet commission and in several national FBDGs, most national FBDGs are still primarily driven by health and nutritional criteria and often do not include sustainability aspects. Compared with globally applicable guidelines, such as the eat-lancet commission, national FBDGs take geographical and cultural circumstances into consideration, and are often well embedded in education and nutrition counselling at the national level.

Although the necessity to reduce the consumption and production of animal products is generally acknowledged, different solutions exist regarding how animal products could be more sustainably produced, and which animal products should

be reduced and to what extent. From a supply perspective, studies suggest that animal production systems should be intensified, which would result in lower environmental impacts per quantity of animal products produced but would require higher concentrate feed inputs given that growth could be faster. From a demand perspective, studies often recommend reducing consumption of animal products substantially or to a minimum. In both narratives, land suitability and therefore competition between resources for feed and for food production is mostly not addressed. Naturally, when resources are suitable to be allocated for feed and for food production, choices need to be made that have consequences for the sustainability of the food system. In circular food systems, resources are prioritised for human food first, and animal feed is allocated as a second priority. A guiding principle for this type of system is to close

nutrient cycles where possible and to minimise external inputs, such as feed and mineral fertiliser imports. Animals would then be fed with primarily domestically available low-opportunity-cost biomass, which is also known as the concept of ecological leftovers in the literature. Subsequently, feed–food competition would be largely avoided and biomass could be used more effectively. Through this process, animals can contribute to recycling biomass and nutrients back into the food system, which would otherwise be lost for human food consumption. Considering that recommendations in national FBDGs for most high-income countries are currently driven by health and nutritional aspects and are based on the current linear food system, the role of animal products in FBDGs from the perspective of the environment and efficient resource use is unexplored.