

EDITORIAL

The Growing Significance of Sustainable Animal Production

By 2050, the world's population is expected to reach 9.7 billion, up by approximately a third from its 2015 total. In such a context, producing animal-based meals in a sustainable manner while providing enough protein to meet the diverse dietary needs of an ever-increasing population, cannot be considered an easy task. Researchers have shown that producing foods derived from animals requires the most resources, leading them to be the most environmentally damaging of all food types to be produced. Foods derived from animals have been criticized for their influence on animal health and welfare and their role in the spread of zoonotic infections and noncommunicable diseases in humans. Regardless of these concerns, the demand for animal-originated food products has notably increased over the past decade. This may be attributed to the ability of animal-based diets to offer several health benefits, environmental advantages, and ecosystem services.

Food policies at the regional level, such as the European Union's new Farm to Fork policy, have started to push for a greater variety of plant-based options. This pattern is also visible in food-based dietary guidelines, with fewer than 10% of countries advocating for a reduction in animal-sourced foods to meet health and sustainability goals. However, it can be argued that plant-based diets are linked to environmental and health problems owing to the lack of all essential amino acids in plant-based proteins and the presence of some anti-nutritional compounds. Moreover, concerns may arise in relation to the bioavailability of micronutrients such as vitamin A, vitamin B₁₂, vitamin D₃, iron, iodine, zinc, calcium, folic acid, and key essential fatty acids, if animal-sourced foods are reduced and replaced with plant-based foods. Maintaining a healthy amount of muscle mass and protecting at-risk populations from physical and mental diseases and defects requires adequate protein intake.

Food and Agriculture Organization (FAO) predicts the future demand for animal-originated foods using three different scenarios; 1) Business as Usual (BAU) —a continuation of historical trends of food preferences including initiatives to address Sustainable Development Goal targets, 2) Stratified Societies (SSs) —leaving challenges unattended, and 3) Towards Sustainability (TS) —a more equitable global society and more sustainable food system due to effective policies. Sustainable Development Goals of responsible consumption and production, sustainable cities and communities, and climate action can be achieved through the sustainable intensification of animal production. In fact, increasing livestock production sustainably has the greatest potential of any agricultural strategy for meeting the climate action target of lowering greenhouse gas emissions.

Increasing animal-based food consumption necessitates not only taking into account agricultural strategies to lessen the environmental impacts of livestock production but also lessening the risks from acute and chronic human diseases

connected to their production and consumption, especially in smallholder livestock systems in developing countries. Additionally, antimicrobial-resistant infections are prevalent in animals, animal food products, and agro-food settings in both developed and developing countries. These concerns call attention to the need for better livestock management techniques to reduce disease risks and boost food safety. However, there is evidence that consuming excessive amounts of some animal-originated foods may raise the chance of acquiring chronic diseases including cancer and diabetes. Hence, strategies that increase their consumption among underprivileged communities and simultaneously emphasize moderation and adherence to recommended daily intakes should be put in place.

Therefore, it is of paramount importance to intensify the attention towards various research and developmental aspects related to the improvement of sustainability in animal production, by focusing on means of improving animal production efficiency, mitigating greenhouse gas emissions, reassessing agroecology and sustainable farming ecosystems, socio-cultural aspects, animal welfare, and ethical considerations.

Prof. Dinesh D. Jayasena

Editor-in-Chief

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