

Nutrition and Diet Challenges of our Global Food Ecosystem

Editorial

According to the World Health Organization, a healthy diet is one that meets the nutritional needs of individuals by providing sufficient, safe, and diversified foods to maintain active life and reduce risks of disease [1]. Our planet's food ecosystem is influenced by climate change, energy and water shortage, environment pollutants, shifting global population demographics, food safety, disease pandemics and various types of global conflicts. This food ecosystem is witnessing multiple, often interacting, nutrition global challenges.

Securing food is imperative priority. Today almost 200 million people in 45 countries/territories [2] lack access to appropriate quantity and quality of food. The State of Food Security and Nutrition in the World is an annual report jointly prepared by FAO, IFAD, UNICEF, WFP and WHO to inform on progress towards ending hunger, achieving food security and improving nutrition. It also provides in depth analysis on key challenges for achieving this goal in the context of the 2030 Agenda for Sustainable Development. Unfortunately, the 2022 report shows clearly that the world is moving backwards in its efforts to end hunger [3].

To ensure food security, major interventions are required to transform current patterns and practices of food production, distribution and consumption. The scientific community has an essential role to play in informing concurrent, strategic investments to establish climate-resilient agricultural production systems, minimize greenhouse gas emissions, make efficient use of resources, develop low-waste supply chains, ensure adequate nutrition, encourage healthy eating choices and develop a global knowledge system for sustainability [4].

An increasingly digitized society involves not only recording human activity but also monitoring food production and distribution. In the agri-food sector large quantities of data are being processed and can lead to better management and improved decision making in crop and animal production [5]. These new possibilities can improve food security, quality and safety.

Editorial Article

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Still there is a global trend for more healthy diet. Research, Industrial and Policy making effort is increasing towards this task. The definition of what constitutes a healthy diet is continually shifting to reflect the evolving understanding of the roles that different foods, essential nutrients, and other food components play in health and disease. A large and growing body of evidence supports that intake of certain types of nutrients, specific food groups, or overarching dietary patterns positively influences health and promotes the prevention of common non-communicable diseases (NCDs) [6]. For example, there is an increasing amount of scientific data to justify that Mediterranean diet is effective in reducing the risk of cardiovascular diseases and overall mortality [7].

New technologies are also promising nutrition and diet improvement. For example, Omics-technologies are powerful tools. They are particularly applied at primary food production in combination with advanced molecular and breeding techniques. By increasing consistency and

predictability, genomics in particular, has the potential to make conventional breeding and advanced breeding techniques more efficient and precisely targeted [8]. Their applications influence positively food availability and quality. Omics-technologies may in the future also be combined with emerging approaches like synthetic biology to create possible new systems of food production. Overall, omics-technologies for food production can bring opportunities for investments with potential benefits for human health and nutrition, deliver better solutions for environmental needs and climate change.

Predictive microbial diagnostics are being developed both on food processing and primary food production. Early warning health diagnostics will definitely improve animal and plant-based food availability, as they will provide essential predictive data and reduce overall microbiological risk. Today they are assisted by already established predictive microbiological models. Both technologies are some of the tools for further evolving food safety.

Food diversification and protection of local traditional diets are important tasks in the global food ecosystem. Basic

and applied research is now revealing new biomarkers that can secure food authenticity. These novel biomarkers can become important verification parts of international food standards and food authenticity legislation.

Many initiatives, international regulation and standards fuel circular bioeconomy and sustainable food production almost in every part of the world. Still more research is needed to verify the appropriate “sweet point” between Environmental protection on one hand and production of safe and nutritious food on the other.

Transparency of the Food Ecosystem evolution is a basic demand both by consumers and scientist. Open access peer reviewed scientific Journals seem to democratize the steps of this process, making it available to a wide audience from consumer to scientists and policy makers.

Scientific data on nutrition and diet is nowadays evolving rapidly. There is an imperative need to evaluate and disseminate the high-quality scientific research results so as to address timely all above mentioned Global Challenges. This is one of the broader scopes of Journal of Nutrition and Diet Management.

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