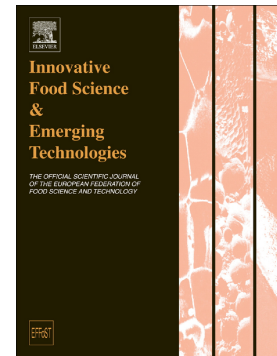


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Food Chains; the cradle for scientific ideas and the target for technological innovations

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Abstract:

Research in the area of emerging food science and technology is still often carried out in agri-food chain perspectives, as presented here in four different ways for dairy, meat, wine and cereal cases. The key focus is on the concept of food quality throughout the chain, and the meaning of added value and food functionalities for consumers. Technology innovation approaches essentially address ways to optimize and maintain food quality according to consumer preferences, needs and acceptances. However, they also strive to reduce the environmental impact of the transformation of agrosources into food products, via targeted and intensified processing schemes requiring minimal energy and water usage, as well as value-streaming co-products of used agrosources—which holds for all the chains presented. Another key area that emerges from the cases is protein science, which concerns agrosources rich in specific protein and, protein heterogeneity, structural changes, profiles, functionalities and nutritional value. This analysis further highlights the importance of linking food science and technology to agronomy, genetics, and socioeconomic sciences. Finally, knowledge management is becoming increasingly integral to food chain research in order to increase transparency and capitalize data in a consistent manner.

Key words: food chains, processing innovations, food quality, sustainable food chains, market trends, consumer demands.

Introduction:

The food sector, especially the food manufacturing industry, is still very much supply chain-oriented and specialized into product categories (meat, dairy, fruit, vegetables, etc.)—FoodDrinkEurope represents 27 sectors (2016) and ANIA 23 in France (2016). This sector structure holds for the primary sector as well as retail—where product categorization is very well visualized – and even in world trade offices and stock exchanges. Numerous research organizations are equally product- and sector-oriented (beer, wine, dairy, meat, etc.), equipped with specific pilot-scale processing lines for research and innovation to solve bottlenecks while mimicking real-life manufacturing conditions (HighTechEurope, 2016). Consequently, a number of research and innovation projects have been carried out in a product chain context. This work has favored big companies via economies of scale for single product output lines, but it has also allowed smaller companies to compete with added value, innovative and/or distinctive products leveraging place-of-origin effects, traditional roots, etc. (Trafoon, 2016; TradeIT, 2016). The value of R&D infrastructures should not be underestimated, as they allow companies to access external knowledge and run tests with the latest equipment without the need to continuously renew their own equipment, and without having to interrupt their ongoing manufacturing process for product development and testing.

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