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What type of meat will we eat in the future: Still conventional meat from livestock, *in vitro* meat or meat analogues?

The global population is estimated to reach 9 billion by the year 2050 and the meat industry would need to increase its production by approximately 50-73% based on current consumption trends. In response, there are several different options that have the potential to satisfy demand and increase production. One of these options is the production of cultured meat, which regularly generates media interest because of the potential contribution to food production while protecting the environment and respecting animal life. Proponents of artificial meat have been successful in engaging the interest of public media with an effective communication strategy. Cell culture has been performed successfully in research laboratories, however, there are significant technical difficulties limiting large-scale production including prohibitive cost and a lack of similarity of the obtained product with animal derived-meat. Other alternatives include selective breeding, animal cloning, genetic modification, agroecology systems and orientation towards bio-economy (those parts of the economy that use renewable biological resources). Furthermore, new protein sources from plants, fungi, algae or insects could also be used as a substitute for meat proteins. In the future, it is likely that meat substitutes will increase market share through competition with low-grade cuts of meat, cheap meat, ground meat and processed meat. To meet growing demands for protein and in the face of growing competition from other protein sources, the conventional meat industry must adopt new farming systems. The traditional more extensive livestock system (pasture-based beef and lamb) is one option likely to satisfy consumers' expectations for natural products. Grazing systems are also the best to convert low-grade cellulose from grass into high quality organoleptic and healthy products. Ultimately, consumer acceptance of artificial meat will depend on moral or ethical concerns about the technology, as well as the usual food product concerns such as price, quality and providence.

Biography

Jean-Francois Hocquette is a Scientist at the INRA(French National Institute for Agricultural Research), France. His research interest mainly concerns with muscle biology as relevant to muscle growth and beef eating quality. His scientific activity resulted in 250 papers, 2 patents, over $7M in grants, Mentor to 27 scholars, Adjunctship (800 students) and 60 lectures worldwide. He was the Head of the Herbivore Research Unit and currently works for the High Council for Evaluation of Research & Higher Education. Besides, he is also involved in the activities of the European Association for Animal Production and of the French Meat Academy. He was an Associate Editor of BMC Genomics, edited two EAAP books and is currently Editor-in-Chief of the *French Meat R&D Journal*.

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