Building sustainable systems at the era of farm-to-fork and agroecology: Unraveling the interplay of quality attributes of animal-source foods

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The quality of animal-source foods includes safety, commercial, sensory, nutritional, technological, convenience attributes and societal image. The latter, also referred to as extrinsic quality, covers ethical, cultural and environmental dimensions related to animal farming and product's processing. All these attributes can be improved, but also impaired, along the value chain from the farm (breed/genotype, farming system and practices) through slaughtering and processing conditions, up to consumption. Some antagonisms between quality attributes have been identified in pork, lamb and poultry. For example, grazing is favorable to image and lamb meat nutritional quality, but increases the risk of off-flavors. Solutions are sought to overcome these tensions. In organic pig farming, feeding can help solve the issue between animal welfare (avoiding males' castration) and sensory quality (reducing boar taint risk). There are also synergies between farming practices. For instance, combining breeding and feeding strategy improves sensory and nutritional quality of pork, while reducing its environmental impact through the relocation of feed resources. The interactions between animal genotype, farming and processing practices are also the root for the high sensory quality and typicality of Geographical Indications products. Quality of animal-source foods is thus part of, and a lever towards sustainable livestock systems. Quantitative assessments of antagonisms and/or synergies among quality attributes, using multi-criteria approaches from a Global Quality perspective, are pivotal to identify pathways for sustainable systems.