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Research report

Convenient meat and meat products. Societal and technological issues ☆

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ABSTRACT

In past and contemporary foodscapes, meat and meat products have not only been following convenience trends, they have been at the heart of them. Historically, the first substantial demands for meat convenience must have been for the outsourcing of hunting or domestication, as well as slaughtering activities. In its turn, this prompted concerns for shelf-life stabilisation and the development of preservation strategies, such as meat fermentation. Demands for ease of preparation and consumption can be traced back to Antiquity but have gained in importance over the centuries, especially with the emergence of novel socio-cultural expectations and (perceived) time scarcity. Amongst other trends, this has led to the creation of ready meals and meat snacks and the expansion of urban fast food cultures. Additionally, contemporary requirements focus on the reduction of mental investments, via the "convenient" concealment of slaughtering, the optimisation of nutritional qualities, and the instant incorporation of more intangible matters, such as variety, hedonistic qualities, reassurance, and identity. An overview is given of the technological issues related to the creation of meat convenience, in its broadest sense, along with their societal implications.

Introduction

Food convenience is fundamental to present-day food markets. It has been identified as one of the chief trends in consumer lifestyles, besides ways of shopping (fast shopping *versus* shopping in specialised outlets), quality evaluation, and purchasing motives related to, for instance, environmental concerns (Grunert, 2006). According to some estimates, the convenience trend may represent some 16 to 18 per cent of the drive for food innovation in Europe (Chamorro, Miranda, Rubio, & Valero, 2012).

In its most conventional form, food convenience is obtained via high degrees of industrial processing and is driven by a demand for ease of collection, preparation, and consumption, in particular with respect to requirements of energy, time, labour, and skill (Ahmad & Anders, 2012; Belasco, 2008; Quested, Cook, Gorris, & Cole, 2010). This leads to a facilitated flow of food from field or stable to plate. A reduced physical and mental investment by consumers is called for in the general process of shopping, preparation, cooking, and handling of the food, as well as in the clearing up after the meal (Buckley, Cowan, & McCarthy, 2007; Grunert, 2006). Some foods are even expected to be eaten effortlessly during everyday activities, *i.e.* while watching television, working at a desk, phoning, or on the move.

Underlying drivers for convenience have been identified as alterations in lifestyles, including the assimilation of women in the workforce, the emergence of single-person and small households, variable family eating times, role overload, consumer deskilling in terms of knowledge and cooking skills, as well as individualistic and impulsive consumerism focussing on value-for-money, stress reduction, and time saving (Bernués, Ripoll, & Panea, 2012; Celnik, Gillespie, & Lean, 2012; Chamorro et al., 2012; de Boer, McCarthy, Cowan, & Ryan, 2004; Fischler, 1996; Jaffe & Gertler, 2006). For instance, time spent by North-Americans on food preparation currently averages less than half an hour daily, whereas this was about 45 minutes to 2.5 hours in the mid-20th century (Barbut, 2012; Celnik et al., 2012).

Of particular interest to consumers is the convenience and ease of preparation of meat-based meals, with meat generally still being the central element of Western diets (Font-i-Furnols & Guerrero, 2014; Ogle, 2013). Amongst European consumers, for instance,

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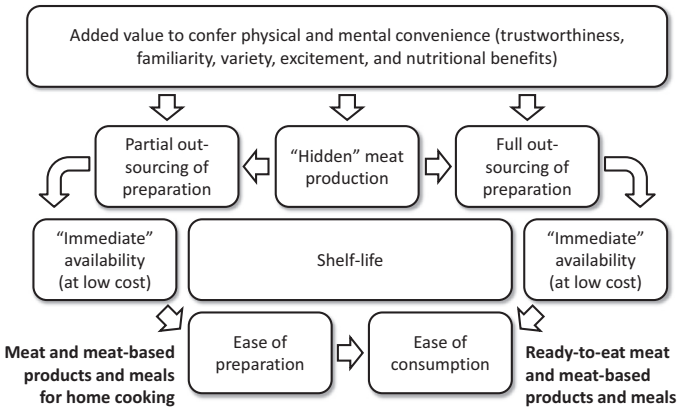

Fig. 1. Overview of the overall convenience framework of meat and meat-based products and meals.

convenience has been identified as the second and third most important determinant of satisfaction with pork products and fresh pork, respectively (Resano, Pérez-Cueto, Sanjuán et al., 2011; Resano, Perez-Cueto, de Barcellos et al., 2011). As a result, convenience has been at the basis of several major innovative technologies in the meat sector and continues to be so (Troy & Kerry, 2010). The present paper will generate an overview of the convenience aspects that have been of importance for meat and meat products throughout history, in particular by sketching the societal and technological relevance for contemporary societies. Figure 1 represents an overview of the different aspects of convenience of meat and meat products that will be systematically discussed in what follows.

Convenience of meat and meat products: general situation

With regard to meat and meat products, convenience is mostly generated through technological processing in view of minimal preparation requirements at household level, preferably with substantial shelf-life stabilisation. In addition, the wide availability of fully prepared meat snacks has become an important constituent of current eating patterns. Yet to fully understand its nature and impact, the concept should be tackled in its broadest sense by exploring the opportunities and constraints imposed by societal expectations and food-related lifestyles (Grunert, 2006). Belasco (2008) therefore places "convenience" as a major element besides "identity" and "responsibility" in his triangular approach of the complexity of food systems. Of all foods, meat is arguably the most multidimensional case with complexity on both the cultural and individual level (Fiddes, 1991). As such, convenience is coupled to such divergent issues as pricing, availability and choice, sustainability, safety, health, and ethics, as well as to mental processes related to the instant generation of comfort, pleasure, excitement, reassurance, and familiarity. This complex spectrum is also tied to a demand for mental insulation from any contact with the disassembly of animals into refrigerated or frozen, plastic-wrapped cuts, meals, and snacks.

Expectations with respect to convenience of meat and meat products cluster along dimensions of culture and lifestyle (Grunert, 2006; Vanhonacker et al., 2013), relating to the prevailing values and attitudes of consumers (Botonaki & Mattas, 2010). Cultural differences may for instance be seen when comparing northern European countries with the Mediterranean area. As an example, Spaniards have been reported to favour eating with friends or family and to be still rather keen on buying fresh meat at traditional butchers (Bernués et al., 2012), although the relevance of shopping in supermarkets and hypermarkets is not to be underestimated (Chamorro et al., 2012). A similar traditional meat chain, with consumers mostly relying on local butchers but gradually moving towards supermarket purchases, has been described for Greece (Krystallis, Chryssochoidis, & Scholderer, 2007).

Even within a single nation, considerable heterogeneity can be found, as has been described for Spanish attitudes towards lamb meat, a relatively expensive product with little versatility in terms of cooking and requiring a rather extensive preparation (Bernués et al., 2012). In brief, convenience characteristics of lamb were a key issue for the "uninvolved" type of consumers, consisting of young and educated males with low incomes, but much less so for consumers of the "traditional" and "adventurous" types, which enjoy creative cooking. In general, the importance of convenience for lamb meat was better predicted by place of residence, age, and level of formal education, than by gender and income, although price setting clearly played a role. In addition to the latter parameters, household size has also been shown to affect convenience preferences for meat and meat products (Resano, Pérez-Cueto, Sanjuán et al., 2011).

Availability and affordability

Humans have spent the vast majority of their existence as hunter-gatherers. The capturing of meat, a very perishable but high-quality food, has been a laborious process that involved co-operation of male band members and has been at the very centre of daily life (Stanford & Bunn, 2001). One of the first major steps towards food convenience, as it is known today, may well have been the outsourcing of the collection, butchering, and preparation of meat, a process that was initiated when human societies increased in size, settled, and stratified into distinct social classes. Availability of meat changed fundamentally from the Neolithic era on, with the advent of agriculture and herding. Although part of the purpose of animal domestication may have been to secure reserves of high-quality protein, this was probably not for immediate meat accessibility (Fiddes, 1991). To a certain extent, the modern notion of market availability emerged during Antiquity, as in Roman towns meat was sold in public (Alcock, 2006). Agricultural revolutions, especially in the Low Countries and Britain, increased the availability of meat products during the Early Modern Period (de Vries & van der Woude, 1997). Yet it was during the 19th century that a combination of industrialisation, rationalisation, transport efficiency, increases in population and purchasing power, rising yields and new and improved methods of distribution, caused the whole food system to change drastically (Segers, 2012). Large-scale, intensive farming of animals dedicated to meat production and market supply did not become established till the mid 19th century (Renton, 2013). A breakthrough was provided during the 1830s, due to railway shipping of cheap grain and the establishment of the meat-packaging industry, such as in the Midwestern United States, enabling mass production through an efficient division of labour along "disassembly lines" (Pilcher, 2005). The import of cheap American and Eastern European feed after the 1870s also enabled land-short countries such as The Netherlands and Denmark to start up factory farms for the intensive production of pork and poultry (Renton, 2013). In parallel, meat availability became a major civil issue as concentrated urban populations developed new needs. Whereas meat was a rare treat to most during previous centuries, late 19th-century Londoners enjoyed some 40 kg of meat per person per year with 40 per cent of the supply being imported, for instance frozen Australian beef (Renton, 2013).

Nowadays, the availability of meat and meat products in Western regions is overwhelming when compared to African and Asian countries (Renton, 2013). Meat is supplied year round in abundance and seasonal limitations or bottlenecks are hardly an issue, as illustrated for instance by the massive availability of turkey during Thanksgiving and Christmas holidays (Barbut, 2012). To the detriment of small butchers (Krystallis et al., 2007), meat and meat