



Review

Advances in the industrial production of halal and kosher red meat



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ABSTRACT

The worldwide volume and value of trade in halal and kosher meat and co-products are huge. Muslim countries alone consumed meat estimated to be worth USD 57.2 billion in 2008. The halal and kosher principles that govern the production of red meat have many similarities, as well as some fundamental differences. Perhaps the most significant difference is that at the time of slaughter, the animal needs only to be alive to meet the minimum halal requirement, but must be both alive and conscious for kosher. It is for this reason that reversible pre-slaughter stunning is acceptable only for halal meat, although a compromise form of post-slaughter stunning is now considered kosher in some countries. Extensive research on animal physiology and welfare has characterised and optimised the methods for stunning livestock, and enabled advancement in associated technologies. This forms the basis for harmonising the religious and secular requirements for the protection of animal welfare at slaughter. These technologies and the associated processing practices for the industrial production of halal and kosher meat are reviewed in this paper.

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1. Introduction

There are many slaughter methods that religions and cultures demand/obligate around the world. The two that are commercially relevant are the halal and kosher methods of slaughter practiced by Muslims and Jews respectively. The global trade in red meat and co-products from animals slaughtered using these two methods is substantial and growing (EI, 2010; Mintel, 2009; Sunkar, 2008). For this reason, technologies have been developed over the years to support the commercial production of halal and kosher red meats, and regulatory and certifying bodies have sprung up to ensure compliance to the religious aspects of producing these meats (Farouk, 2012; Longdell, 1994; Weaver & Wotton, 2009).

One common aspect of commercial halal and kosher red meat production is the slaughter of animals without stunning. This method of slaughter is endorsed by the OIE, European Community, and many other countries yet it remains extremely controversial from an animal welfare standpoint (Grandin, 2010). The purpose of pre-slaughter stunning of livestock is to ensure that animals are insensible to pain before the act of slaughter. Research has defined the principles that underpin effective stunning of livestock, and the results of this work underpin regulations for the protection of animal welfare at slaughter (Farouk, Daly, Collinson, & Simmons, 2004). Although this legislation varies from country to country, these differences tend to be minor and they largely reflect historical adaptation to local commercial procedures. Advances have also been made in the development of non-invasive methods of reducing pain. Whether or not some of those find use in halal and kosher slaughter in the future remain to be seen.

The debate regarding the welfare aspect of slaughter without stunning goes on. Zivotofsky and Strous (2012) summed up the feelings of all parties when they wrote “the quest should continue to ensure that the process of animal slaughter is as humane as possible for the sake of animal welfare”.

This paper reviews the relevant aspects of halal and kosher red meat production.

2. Definitions and importance

Comprehensive reviews of halal and kosher dietary laws can be found in Al-Qaradawi (1960), Regenstein, Chaudry, and Regenstein (2003), and Kamali (2008a, 2008b, 2008c).

According to Regenstein et al. (2003) the halal dietary laws determine which foods are “lawful” or permitted for Muslims and kosher (kashrus) dietary laws determine which foods are “fit or proper” for consumption by Jewish consumers who observe these laws.

According to Hussaini and Sakr (1983), *halal* is an Arabic word meaning ‘allowed’ or ‘lawful’. The ‘prohibited’, ‘forbidden’ or ‘unlawful’ is termed *haram*. In between *halal* and *Haram* are *Makrooh* (religiously discouraged or detested) and *mashbooh* (suspected or doubtful). Other terms often used include *mubah* (neutral or indifferent, Aziz, 1989) and *dhabiha* (animals slaughtered according to Islamic dictates). These categories of lawful and prohibited are derived from Islamic law based on the Holy Qur’an (revealed word of God) and the teachings of Prophet Muhammad (peace be upon him) compiled and authenticated in books known as *Hadith*. Among the central principles used in determining the permissibility and prohibition of foods in Islam is the belief that God alone has the right to determine what is halal and haram; and that good intentions do not make the haram halal (Al-Qaradawi, 1960).

The kosher dietary laws are based on commandments found in the *Torah* which has been interpreted and refined by the Jewish religious leaders known as rabbis; this system of Jewish law is referred to as “halacha.” In these laws food are categorised into four: meat (*fleishig*); dairy (*michig*); neutral (*pareve*); and unacceptable (*traif*) (Regenstein & Regenstein, 1991).

The lists of red meat animals that are acceptable for halal and kosher meat production are discussed at length in Regenstein et al. (2003). The ones common to both Muslims and Jews include cattle, sheep and goats.

2.1. Development of halal and kosher meat markets

The population of Muslims is estimated to be anywhere between 1.6 and 1.8 billion and growing – forecasted to represent 27% of the global population by 2030. Coupled to this is the growing economic development and disposable income in Muslim countries. These two factors are the major drivers of halal growth, and potentially the reasons for halal becoming the biggest brand in the world (Farouk, 2012; Sunkar, 2008). According to the World Halal Forum Secretariat (<http://www.worldhalalforum.org/secretariat.html>), the world halal food and beverage trade is estimated to be approximately USD 1.4 trillion dollars annually. The opportunities that this halal brand represents are the reason for global food giants as well as small to midsize companies becoming involved in the manufacturing and marketing of their products to Muslims worldwide (EI, 2010).

The global Jewish population reached 13.75 million in 2011, with about 43% of this number living in Israel (Silverman, 2012). In the USA, home to the second largest population of Jews outside Israel, the market for kosher food is strong and growing with sales of kosher foods totalled USD 12.5 billion in 2008 (Mintel, 2009). Regenstein et al. (2003) reported that in 2001 about USD 165 billion worth of products have kosher markings on them.

The value of red meat and co-products imported in 2011 into countries and regions with sizeable population of Muslims and Jews are shown in Table 1. Sunkar (2008) reported that in 2008, Muslim countries consumed meat worth USD 57.2 billion with trade in meat to and from those countries worth USD 7.0 billion. It is very difficult to estimate the volume and value of halal and kosher meat traded and consumed around the globe because these meats are not consumed for religious reasons alone. A recent survey of consumers by Mintel (2009) found the number one reason people buy kosher was for food quality (62%); followed by “general healthfulness” (51%); third was food safety (34%); and just 14% of respondents purchased kosher food because they follow kosher religious rules.

The proportion in value of halal and kosher meat traded could be determined by comparing the value of red meat imports into UAE and Israel. The World Bank estimated the population of Israel and UAE to be 7,765,700 and 7,890,924 respectively (Table 2). Only red meat certified kosher is allowed into Israel and only halal meat

Table 1

Value (USD × 1000) of imported halal and kosher red meat and co-products of some selected countries/regions in 2011.

Importing country/region & products	Red meat category			
	Chilled beef	Frozen beef	Lamb and chevon	Edible offal
<i>Halal red meat & co-products</i>				
Indonesia	14,368	219,898	6555	87,161
Maghreb	57,470	183,766	5436	3177
Malaysia	15,435	373,661	97,047	38,268
Middle East	974,727	2,816,453	823,448	233,193
Saudi Arabia	63,584	323,356	233,735	29,485
United Arab Emirates	116,900	176,331	212,909	10,256
<i>Kosher red meat and co-products</i>				
Israel	No import	453,546	7898	9025
World total red meat import	20,416,452	15,997,636	6,196,566	6,574,085

Source: Market Analysis Research, International Trade Centre (ITC) Geneva Switzerland (http://www.trademap.org/tradestat/Country_SelProductCountry_TS.aspx). Accessed 02 Jan 2013.

Maghreb = Algeria, Libya, Mauritania, Morocco and Tunisia.

Middle East = Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi Arabia, Syria, Turkey, UAE and Yemen.

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