



## Halal and kosher slaughter methods and meat quality: A review



M.M. Farouk <sup>a,\*</sup>, H.M. Al-Mazeedi <sup>b</sup>, A.B. Sabow <sup>c,g</sup>, A.E.D. Bekhit <sup>d</sup>, K.D. Adeyemi <sup>e,g</sup>, A.Q. Sazili <sup>f,g</sup>, A. Ghani <sup>a</sup>

<sup>a</sup> AgResearch Limited, Ruakura Research Centre, East Street, Private Bag 3123, Hamilton, New Zealand

<sup>b</sup> Kuwait Institute for Scientific Research (KISR), PO Box 24885, Safat 13109, Kuwait

<sup>c</sup> Department of Animal Resource, University of Salah al-Din, Erbil, Iraq

<sup>d</sup> Department of Food Science, Division of Sciences, University of Otago, PO Box 56, Dunedin, New Zealand

<sup>e</sup> Department of Animal Production, University of Ilorin, PMB 1515, Ilorin, Nigeria

<sup>f</sup> Halal Products Research Institute, Putra Infoport, Universti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia

<sup>g</sup> Department of Animal Science, Faculty of Agriculture, Universti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia

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### ABSTRACT

There are many slaughter procedures that religions and cultures use around the world. The two that are commercially relevant are the halal and kosher methods practiced by Muslims and Jews respectively. The global trade in red meat and poultry produced using these two methods is substantial, thus the importance of the quality of the meat produced using the methods. Halal and kosher slaughter *per se* should not affect meat quality more than their industrial equivalents, however, some of their associated pre- and post-slaughter processes do. For instance, the slow decline in blood pressure following a halal pre-slaughter head-only stun and neck cut causes blood splash (ecchymosis) in a range of muscles and organs of slaughtered livestock. Other quality concerns include bruising, hemorrhages, skin discoloration and broken bones particularly in poultry. In addition to these conventional quality issues, the “spiritual quality” of the meat can also be affected when the halal and kosher religious requirements are not fully met during the slaughter process. The nature, causes, importance and mitigations of these and other quality issues related to halal and kosher slaughtering and meat production using these methods are the subjects of this review.

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## 1. Introduction

Ancient traditions have long guided the production, slaughter and preparation of meat for human consumption. Two of these, halal (“lawful”) and kosher (“ritually pure”), are still widely practiced by Muslims and Jews, respectively. The global volume and value of meat commercially produced using halal and kosher methods are huge (Table 1). Producers and consumers demand that the quality of this meat is on par or even better than their equivalents produced using conventional methods.

Meat quality is generally described in terms of aesthetic, tactile, masticatory, functional, nutritional, health, convenience and environmental-impact attributes. These can be affected by halal and kosher customs associated with pre-slaughter, slaughter and post-slaughter (Farouk, 2013).

In this review the impact of the halal and kosher religious slaughter practices on meat quality are discussed.

## 2. Definitions and importance of meat quality

### 2.1. Conventional perspective

Producers must follow narrow definitions when grading carcasses and cuts for quality, but consumers' perception of meat quality is wide and subjective. It reflects regional and national differences, ethnicity and culture, political and economic considerations, individual beliefs and ideologies, and package labeling information and context (Fayemi & Muchenje, 2012; Grunert, 1997; Korzen & Lassen, 2010; Krystallis, Chrysoschoydis, & Scholderer, 2007; Ndu, Muchenje, & Chimonyo, 2011; Polkinghome, Nishimura, Neath, & Watson, 2011; Thompson et al., 2008; Zepeda, Sirieix, Pizarro, Corderre, & Rodie, 2013). Meat quality is also judged in terms of intrinsic/extrinsic, table/eating, visual/appearance, manufacturing/technological, nutritional/health, safety/reliance, expected/experienced, functional/chemical, physical/sensory and credence factors (Farouk, Beggan, Hafejee, Freke, & Bekhit, 2007; Grunert, 1997; Joo & Kim, 2011; Troy & Kerry, 2010).

Aesthetics such as color and marbling, and eating qualities like tenderness and juiciness, are intrinsic to meat, whereas reliance quality traits such as safety, price, presentation, packaging, origin and brand are extrinsic (Grunert, Bredahl, & Brunsø, 2004; Joo & Kim, 2011; Troy & Kerry, 2010). Tenderness, juiciness and flavor are important considerations at the dining table, in contrast to meat protein solubility and the

\* Corresponding author. Tel.: +64 7 838 5260.

E-mail address: [mustafa.farouk@agresearch.co.nz](mailto:mustafa.farouk@agresearch.co.nz) (M.M. Farouk).

**Table 1**  
Value (USD x 1000) of imported halal and kosher red meat, poultry and co-products of some selected countries/regions in 2012.

Importing country/region and products	Red meat category				Poultry meat/offal
	Chilled beef	Frozen beef	Lamb and chevon	Edible offal	
<i>Halal red meat, poultry and co-products</i>					
Indonesia	11,499	127,715	8,083	16,792	1,209
Maghreb	57,276	305,497	36,842	3,940	175,520
Malaysia	16,972	410,097	95,742	48,336	108,341
Middle East	598,504	2,942,249	897,159	278,916	4,078,447
- Saudi Arabia	75,043	362,267	225,707	36,540	1,513,312
- United Arab Emirates	160,105	195,407	223,470	12,516	644,587
<i>Kosher red meat, Poultry and co-products</i>					
Israel	264	418,421	9,033	10,854	10,605
World total red meat import	19,803,464	17,797,649	5,642,451	6,786,811	25,041,855

Source: Market Analysis Research, International Trade Centre (ITC) Geneva Switzerland ([http://www.trademap.org/tradestat/Country\\_SelProductCountry\\_TS.aspx](http://www.trademap.org/tradestat/Country_SelProductCountry_TS.aspx)). Accessed 23 March 2014.

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.

ability of the solubilized proteins to bind water and fat, which are key parameters during manufacturing. Some characteristics, such as high water holding capacity (WHC), influence perceived quality for both the diner and the manufacturer, particularly for meat intended for frying, grilling or roasting. However, the same WHC quality is not desirable for a jerky manufacturer wanting to dry the meat quickly and cheaply.

These conventional definitions of quality are based on inherent or perceived *physical* characteristics of meat. For most consumers they determine the meat's appeal, acceptability, utility and, ultimately, its value.

## 2.2. Spiritual perspective

Spirituality and ideology influence people's attitude toward the killing of animals and the consumption of meat. Consideration of the source, life and death of the animal adds another dimension to meat quality—one that cannot be evaluated by science or measured by instruments. Nevertheless, “down-grades” on those attributes can have a marked effect on meat value.

Religions are rich with traditions around eating. For example Islam teaches that all animals are created by God (Quran 24:45), with some created specifically for man's benefit (Quran 36:71) to domesticate and use for transportation and food (Quran 23:21; 40:79). God provided these animals for their edible parts as well as their useful by-products (Quran 16:5, 80). They are to be sacrificed for His own sake and the meat distributed to the poor (Quran 22:34, 36) who cannot on their own afford to buy and slaughter an animal for meat.

A key condition of the permission given to man to slaughter and eat the flesh of animals is to mention the name of God during the slaughtering (Quran 6:121; 22:36). According to Al-Qaradawi (1960), acknowledging God during the slaughter is tantamount to the slaughterer first obtaining consent from his and the animal's Creator to take the life of another creature; and it is a declaration on the part of the slaughterer that his act is not an act of aggression against the universe nor of oppression of the creature about to be slaughtered, but simply an act necessitated by a need fulfilled in the name of God. Conversely, under some condition consumption is prohibited, such as animals that were dead prior to exsanguination, or that were slaughtered without mentioning God, or in which other deities or names other than that of God were professed during the slaughter, will corrupt the heart and result in loss of piety and acceptance of prayer (Sahih Al-Bukhari 1/49; Sahih Muslim 2/703).

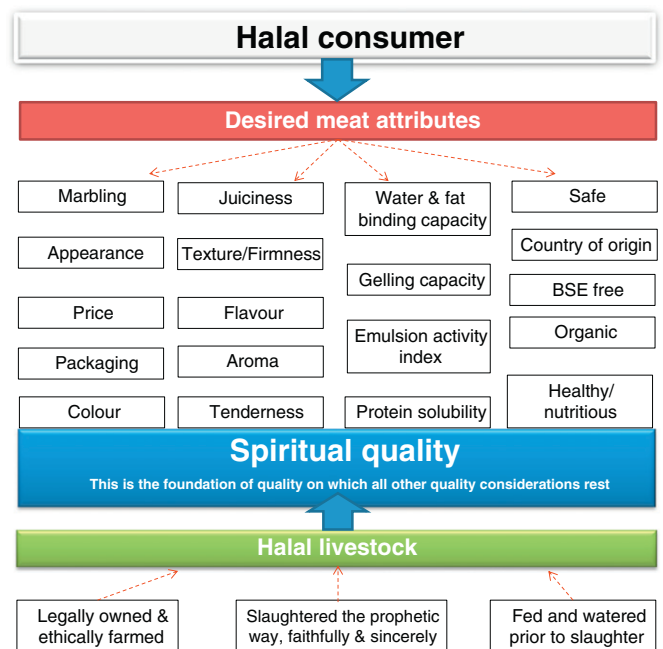
Thus, in addition to all the conventional terms used to convey the qualities of meat, “spiritual quality” is of foundational importance for Muslims as well as some other faith groups (Fig. 1). Indeed it is the *chief* consideration for a large population of consumers and supersedes physical properties of meat such as color, tenderness, juiciness, protein

solubility, and WHC. For halal and kosher adherents, meat that has graded well, yet failed to meet the minimum requirements of religious commandments during its production, would be considered spiritually worthless.

### 2.2.1. Harmonizing spiritual and temporal views

Industrial production of high-quality meat must juggle the disparate demands of consumer groups and food safety regulators. There is urgent need to harmonize devout spiritual views with those that are temporal or corporeal and which are based on scientific evaluation. A major area of contention is the slaughter of animals without stunning prior to throat slit and exsanguination. This practice is allowed in many countries, but it is extremely controversial with regard to animal welfare. Areas of concern include the stress of restraining the animal, whether the cut is painful, and whether the animal experiences undue distress while bleeding out, such as the aspiration of blood into the lungs (Grandin, 2010; Gregory, 2005).

Islam teaches that animals are to be slaughtered according to the mindful and attentive way taught by the prophet (prophetic method). This includes giving the animal full access to feed and water before



**Fig. 1.** Spiritual perspective of meat quality showing the importance of spiritual considerations over temporal in determining the quality of meat.

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