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sciences and Biotechnology

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Master thesis

Halal sheep meat in Norway: Muslims festivals
– a new niche in the market

Halal sauekjøtt i Norge: Muslimske festivaler – et nytt nisjemarked

Master in Sustainable Agriculture

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Contents

ENGLISH SUMMARY (ABSTRACT)	7
NORWEGIAN SUMMARY	8
1. INTRODUCTION	9
1.1 SUSTAINABLE AGRICULTURE	9
1.2 SHEEP FARMING SYSTEM.....	13
1.3 MEAT PRODUCTION AND CONSUMPTION	21
1.4 THE RELATIONSHIP BETWEEN FOOD AND CULTURE	24
2. THE PROBLEM SPACE: A REVIEW	32
2.1 HALAL MEAT.....	32
2.2 CONSUMER PURCHASE INTENTION.....	40
2.3 MEAT CONSUMPTION AND CONSUMER BEHAVIOUR	43
2.4 CONSUMER PREFERENCE REGARDING MEAT QUALITY AND FOOD SAFETY	46
2.5 BARRIERS IN THE HALAL MEAT SUPPLY AND MMF CELEBRATION IN NORWAY	48
2.6 MUSLIMS CONSUMER MEAT PURCHASE INTENTIONS	48
2.7 MUSLIM FESTIVALS.....	51
3. THE CURRENT STUDY: OBJECTIVES, MATERIAL AND METHODS	54
3.1 AIMS OF THE STUDY	54
3.2 METHODOLOGY	54
3.2.1 <i>A consumer survey among the Pakistani Muslim community in Oslo</i>	55
3.2.2 <i>In-depth interviews with Imams</i>	57
4. CONSUMER SURVEY: RESULTS AND DISCUSSION	58
4.1 HALAL PREFERENCE VS. COUNTRY OF BIRTH AND VS. EDUCATION	59
4.2 MEAT CONSUMER GENDER VS. MEAT QUALITY PARAMETER	62

4.3	CONSUMER PREFERENCES FOR THE HALAL LOGO AND OTHER MEAT INFORMATION	67
4.4	MEAT CONSUMPTION PATTERNS	79
5.	IMAM INTERVIEWS: RESULTS AND DISCUSSION	81
5.1	THE FIRST IMAM	81
5.2	THE SECOND IMAM	82
5.3	THE THIRD IMAM	84
6.	DISCUSSION AND CONCLUSION.....	87
6.1	TO BETTER UNDERSTAND THE MEAT CONSUMPTION AND PREFERENCES OF NORWEGIAN MUSLIMS OF PAKISTANI ORIGIN IN OSLO	87
6.2	TO EXPLORE THE POTENTIAL IN MUSLIM MEAT FESTIVAL (EID AL-ADHA) ON NORWEGIAN SHEEP PRODUCTION AS A NEW NICHE IN THE MEAT MARKET.....	92
6.3	TO INVESTIGATE THE VIEWPOINTS OF MUSLIM IMAMS IN OSLO	94
	REFERENCES.....	97
	APPENDIX I:.....	118

List of Figures

- Figure 1. Three pillars of sustainable development
- Figure. 2. Global emission intensities by commodity.
- Figure.3. Global sheep meat consumption and price, 2000-2023.
- Figure. 4. Study analysis. Global Market Development for Sheep Meat.
- Figure 5. Sheep population density in Norway.
- Figure 6. A typical Norwegian sheep production system.
- Figure 7. Norwegian sheep population in winter in the 19 counties.
- Figure 8. The number of sheep and lambs slaughtered and slaughterhouse purchase prices.
- Figure 9. Halal preference vs. country of birth.
- Figure 10. Halal preference vs. education.
- Figure 11. Meat preference by factor gender (male/female).
- Figure 12. Ready to eat meat dishes consumer preferences by factor gender (male/female).
- Figure 13. Animal sex preference vs. consumer education.
- Figure 14. Effect of consumer education on halal logo preference.
- Figure 15. Effect of consumer gender on halal logo preference.
- Figure 16. Preference of meat origin by consumer gender.
- Figure 17. Place of meat purchase vs. consumer gender.
- Figure 18. Preference of specific food by age category of the consumers.
- Figure 19. Animal feeding system (naturally vs. does not matter) by education factor.

List of Tables

- Table 1. Scenario 1 'Most likely' assumptions.
- Table 2. Cooking meat preferences at home by factor gender.
- Table 3. Frequency of eating sheep/lamb meat at home by factor gender.
- Table 4. Consumer meat consumption in kg by factor age.
- Table 5. Overview of consumer answers on other specific questions.

List of Abbreviation

MMF	Muslim Meat Festival
RTE	Ready to Eat
WCED	World Commission on Environment and Development
NOK	Norwegian Krone
GDP	Gross Demotic Production
FAO	Food Agriculture Organisation
NWS	Norwegian White Sheep
SSB	Statistics Bureau of Norway
PCI	Per capita income
NMBU	Norwegian University of Life Sciences, Ås
NSD	Norwegian Centre for Research Data
UK	United Kingdom
UAE	United Arab Emirates
HACCP	Hazard Analysis Critical Control Point
UNEP	United Nation Environmental Programme
UN	United Nations

English summary (abstract)

Halal lamb/sheep meat is popular among Muslims due to religious and cultural influence. Currently, 1.6 billion Muslims around the world, projected to be 2.2 billion in 2030, are practising religious dietary laws. Norway is the largest sheep/lamb meat producer among the Nordic countries, and for Norway, there should be an increasing demand for halal meat. A research work was conducted to examine this more in details. The primary objective was to understand Muslim consumers' preferences in Norway, especially at the eve of the Muslim Meat Festival (Eid-al-Adha). Interviews were conducted among Norwegian Pakistani Muslim families based in Oslo and among Imams in the same city. The interview questions were asked in a semi-structured way. In addition, a literature review was made to overview the theoretical fundament but also to better understand religious and cultural factors involved in consumers' decision-making. The results showed that religious beliefs, faith, psychological, and culture factors were important among Pakistani Muslim consumers in Norway. Most of the respondents prefer to eat halal lamb/sheep meat and there is a willingness to pay additional, and we could link this to religious belief. The country of birth and education level seemed not to affect the attitudes. The respondents preferred to buy meat from local butchers because of trust. When buying from supermarkets, certified/halal logos were especially checked. Special meat cuts/portions were preferred due to better taste, tenderness, quality and as a requirement to cook certain specific traditional dishes. Lamb/sheep was preferred over other or mixed meat types. Most consumers preferred Norwegian meat due to taste and quality, but also a strict quality control by food authority. The Imams strongly supported a halal meat value chain. At the Muslim meat festival, slaughtering of yearling sheep is preferred, which could improve yearling sheep prices in Norway, due to this specific demand by the Muslims. The results are discussed on background of an increase in the Muslim population in Norway and what this implies for an increased production of Norwegian halal lamb/sheep meat.

Keywords: Sustainability, halal, religion, Muslim, meat market

Norwegian summary

Halal-kjøtt fra sau og lam er populært blant muslimer, noe som har koblinger til religion og kultur. 1.6 milliarder muslimer rundt om i verden praktiserer religiøse måltidsregler og denne er forventet å øke til 2.2 milliarder innen 2030. Norge har den høyeste produksjonen av sau og lam i Norden og for Norge skulle det innebære en økende etterspørsel for halal-kjøtt. Det ble derfor gjennomført et forsøksarbeid for å undersøke dette nærmere. Formålet har vært å bedre forstå muslimske forbrukere i Norge og særlig knytta til feiringen under den muslimske kjøttfestivalen Eid-al-Adha. Det ble gjennomført intervjuer blant norsk-pakistanske muslimske familier i Oslo og blant imamer fra samme sted. Intervjuspørsmålene ble stilt på en semistrukturert måte. I tillegg ble det gjennomført et litteraturstudie, dette for å få oversikt over det teoretiske fundamentet bak forbrukernes valg og for å bedre forstå religiøse og kulturelle faktorer involvert. Resultatene viste at religiøs tro, samt psykologiske og kulturelle faktorer var viktige blant pakistanske muslimer bosatt i Norge. De fleste foretrakk å spise halal-kjøtt fra sau og lam og de var villige til å betale mer for slikt kjøtt, og dette kunne vi koble til religiøs tro. Fødselsland og utdanningsnivå så ikke ut til å påvirke holdningene. De foretrakk de å handle fra lokale slaktere og dette på grunn av tillit. Ved handling på supermarkeder sjekkes særlig halal-logoer som kan vise at kjøttet er sertifisert. De foretrekker å kjøpe kjøtt som er kuttet i spesielle deler/posjoner, dette på grunn av smak, mørhet eller annen kvalitet viktig i forhold til tradisjonell matlaging. De fleste foretrakk norskprodusert kjøtt, dette på grunn av smak og kvalitet men også en streng kvalitetskontroll i Norge. Imamene var veldig positive til en verdikjede for halal-kjøtt. Under den muslimske kjøttfestivalen er slakting av årsgamle sauer å foretrekke, et behov som skulle kunne gi økt pris på årsgamle sauer i Norge. Resultatene diskuteres med bakgrunn i en forventet økning av den muslimske populasjonen i Norge og hva dette kan innebære for økt produksjon av halal-kjøtt fra sau og lam.

1. Introduction

The world population is projected to be nine billion by 2050 (Hall, 2015), which underlines the necessity of an efficient and sustainable agricultural sector to fulfil human food demands (OECD, 2018; ASI, 2019). In human diet, meat is regarded as an essential source of proteins and other micronutrients such as iron, selenium, and vitamins A, B3, B12 (de Andrade, de Aguiar, Sobral, Ares, & Deliza, 2016; Xazela, Hugo, Marume, & Muchenje, 2017) that are required to carry out normal body function (Montossi et al., 2013). Sheep farming has a significant contribution to the total global meat production and specifically its economic and social influence in the growth of the sheep-meat producing countries such as Australia and New Zealand (de Andrade et al., 2016). Several factors are affecting the sheep farming systems worldwide, which determines differences in the intrinsic and extrinsic characteristics of sheep meat production (Sañudo et al., 2007).

Meat consumers are the main driving force for the sheep industry. Several factors are affecting the meat consumer preferences, including meat sensory trait such as taste, colour, and tenderness (de Andrade et al., 2016). However, consumer meat preference is also somehow linked with their religious, socio-economic status, and animal welfare (Font-i-Furnols & Guerrero, 2014). An average household is estimated to spend a sufficient proportion of their income on meat consumption in comparison to other household goods and services (Gold, 2016). Consumers' meat preferences have evolved over the years thereby affecting their meat consumption. Besides, meat consumption pattern is variable across the globe as some cultures have meat-based food while others are more preferring vegetable-based food (DeLonge, Miles & Carlisle, 2016).

1.1 Sustainable Agriculture

The sustainability concept is used to achieve economic growth and industrialisation without environmental degradation (Lennon, 2017). From the last few decades, the concept of sustainable development develops through the participation of the World Conservation Strategy (1980). The World Commission on Environment and Development (WCED) has defined "*Sustainable development as a development that meets the current needs without compromising the ability of future generations to meet their own needs*" (WCED, 1987). This definition is based on the United Nation Environmental Programme (UNEP) which describes

sustainable development comprises three pillars: society, economy, and the environment (Lennon, 2017).

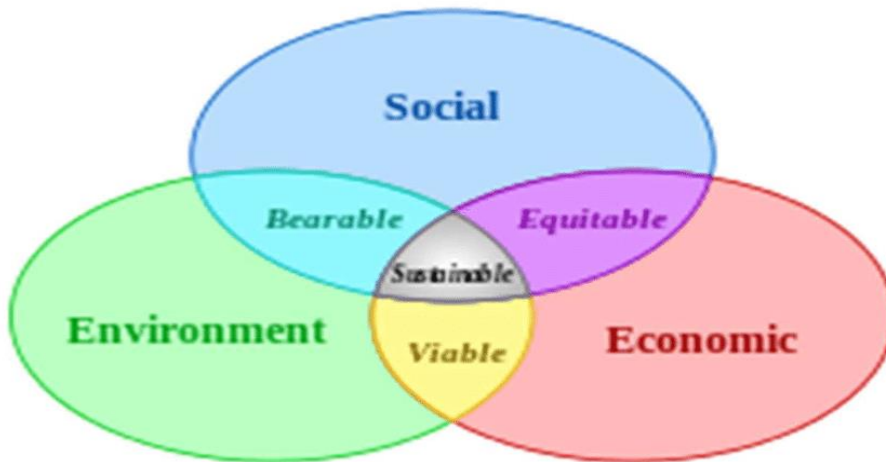


Figure 1. Three pillars of sustainable development (Thomos & Trentesaux, 2014).

The study of organisms and the environment lays the foundations of sustainable agriculture (Altieri, 2018). It is the study of the derivation of eco-friendly methods towards farming and agriculture (Srivastava, Singh, Tripathi & Raghubanshi, 2016). The derivation of the terminology sustainable agriculture comes from practising integrated systems of farming and breeding of the plant and animal production, which shall enhance the sustainability of reap over the years (Crosson, 2016; Altieri, 2018). The core purpose of this method is to provide outcome matching the human needs of nutrition and fibres. According to Olson (2017), sustainable agricultural methods are considered as sustainable as they improve the environment and the natural resources in the long end. The agricultural economies focus on maximising the usage and consumption of non-renewable and degradable wastage, which can be used for farming and agriculture (Offenberg, 2015). The integration of natural biological cycles enhances the control of farmers to yield increasing sustainability.

Sustainable agriculture protects the societal food demand of the world and avoids the adverse effects of farming on the whole environment and ecosystem services (Lichtfouse, 2009; Gold, 2016). Moreover, by integrating biological, ecological, economic, and social sciences a comprehensive way to develop new farming practices within sustainable agriculture that are safe for the environment (Lichtfouse, 2009; Conway & Barbier, 2013) is vital. According to

the Norwegian slaughterhouse Nortura, data that showed just only paid 315 NOK to farmers for 25 sheep animals (>1 year) (Wijen, 2018) which clearly indicate the fragile of the sheep farmers economy in Norway. Moreover, as described by the (Lennon, 2017) the sustainability must be economical for the farmers that in case of Norwegian sheep farmers is not economical due to the lowest price (approx.. 1 USD or four NOK) offered for the sheep (> one year) (Wijnen, 2018).

Livestock production plays a vital role in sustainable agriculture (Lemaire, 2014). It shares a significant proportion of GDP in agriculture countries thereby providing meat, milk, fibre, wool, and leather including both food and non-food products (Broom ,Galindio & Murgueitio 2013; Gold, 2016). Livestock is directly linked to the country's economy and the livelihood of farmers (Lichtfouse, 2009; Altieri, 2018). The changing trends and practices in agriculture have been effected on the aspects of food security (Badgery, Mitchell, Millar, Broadfoot, Michalk, Cranney & Brown, 2017). All these factors are essential for making farming processes highly sustainable.

World livestock production is developed by various supply chains (DeLonge et al., 2016). United Nations reported 14 Million tonnes of protein produced from the East and Southeast region alone including Asia (FAO, 2019). Most of the production, which is entailed is done from the monogastric species, also contribute towards the production of sustainable agriculture methods (Srivastava et al., 2016). The production portrays from the European and American region alone amounts to around 9.5 Million tonnes of protein (FAO, 2019).

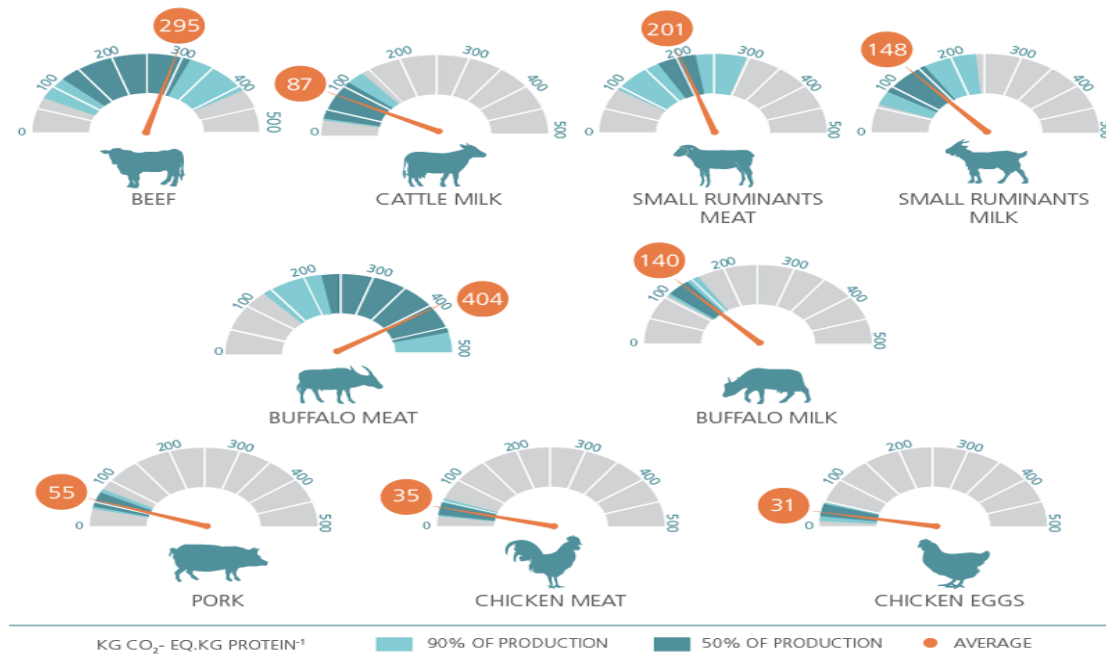


Figure 2. Global emission intensities by commodity. All commodities are expressed in a per protein basis. Averages are calculated at a global scale and represent an aggregated value across different production systems and agro-ecological zones. (FAO, 2019).

The significance of livestock production is allocated with utilisation milk and meat animals such as buffalo, cattle, and sheep, etc. According to a report of the United Nations (UN), the depiction of emission is done for allocating the usage of poultry along with the non-edible products, which provide an accumulation of multiple commodities and protein-based products.

The animal production trend is an orderly transition from extensive small-scale to intensive, large-scale systems worldwide that increases the efficiency of livestock production in terms of productivity and profitability (Hanekom, 2010). However, some environmental issues can be addressed by using the local feed resources by grazing of animals. Currently, the global warming is one the biggest challenges for the entire world which do not impact only on the environment but also affect the livestock production, animal welfare and meat production especially small ruminants animals (Hanekom, 2010). For instance, from the past few decades, it was observed that the worldwide sheep production declined (Hanekom, 2010) due to various factors such as unpredictable weather patterns and seasonal droughts. Such kind of factors

makes human food production issues (Hanekom, 2010). These factors have affected the livestock population; hence the production capacity that may lead to the meat shortage in those areas. (Nordane et al., 2010). An animal extensive production system is dependent on natural resources such as grazing, watering, and free-range animal's unusually small ruminant animals that are considered 30 % of the global meat production (Hanekom, 2010). In an extensive sheep farming system, animals spend the whole day outdoors and obtain most of their nutrients from the natural pasture with multi-plant species such as grazing on mountains and rangelands across the global. In addition, extensive grazing system plays an essential role in maintaining the landscape and ecosystem (Waterhouse, 1996). However, on the other hand-intensive production is the fastest growing sector which contributes 40% global meat production system and increasing more dependency on the concentrate feeding (Nierenberg, 2005; Hanekom, 2010; Sumalde, & Quilloy, 2015).

1.2 Sheep farming system

Sheep farming is the source of earning and employment in agriculture countries such as Australia, New Zealand and China thereby earning the most capital through the business of sheep farming in the world (Domke et al., 2013). However, from the last few years, the sheep population was declined worldwide, although sheep stock declined approximately 50% in Australia, Argentina, and New Zealand (Hanekom, 2010). In addition, the United States of America (USA) has the worst experience to decline sheep population from 50 million to 6 million respectively in 1940 and 2008 year (Hanekom, 2010). However, China is the world largest sheep meat producer but slightly decline sheep flock size from 152 million to 136 million respectively in 2005 and 2008 (Hanekom, 2010). According to worldwide statistics, 146.1 million sheep heads were found in China, and Australia is the second one in the list (Domke et al., 2013).

Moreover, sheep farming is growing as a traditional business and the primary source of income for the smallholder farmers in the majority of the developing countries (Cao & Li, 2013). Sheep farming is a significant business due to milk, meat, and wool production. Its practices are prevalent due to the needs of less space as compared to the other livestock species business (Forbord, 2014). Additionally, it is estimated that there are over one billion of sheep's all over the world, which includes the ewes, rams, and lambs (Gold, 2016). The global sheep meat production and statistics show the details of consumption and price. As per Rust (2018), the

speculative details of sheep meat consumption and prices, which have historically prevailed are speculated by this analysis. The tentative speculative figures have been predicted until the year 2023. The global prices and consumption factors show volatility over the years based on different global challenges.

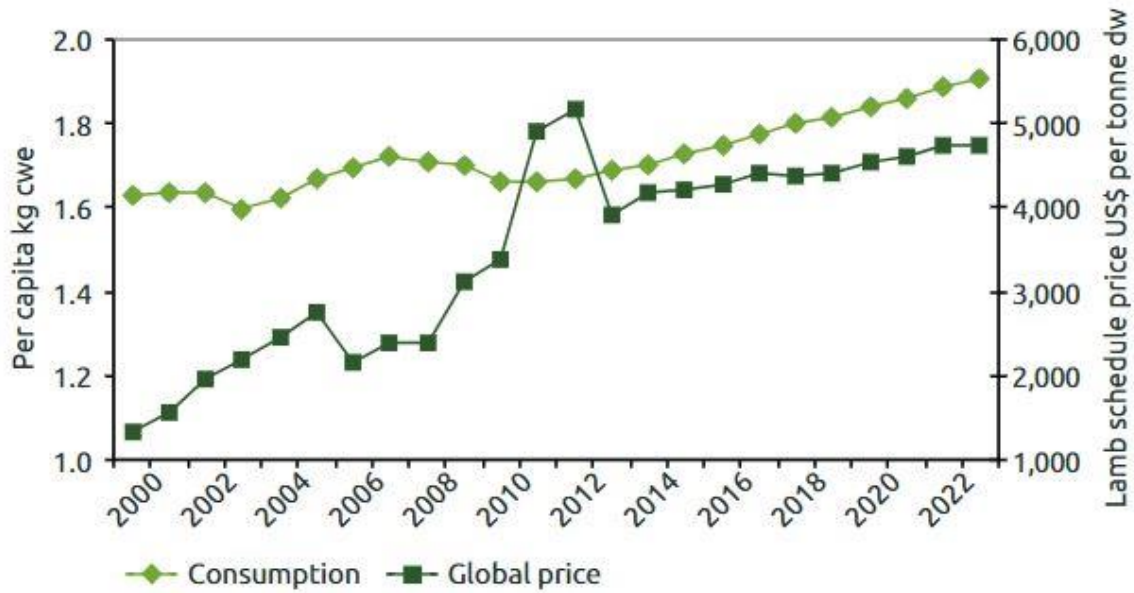
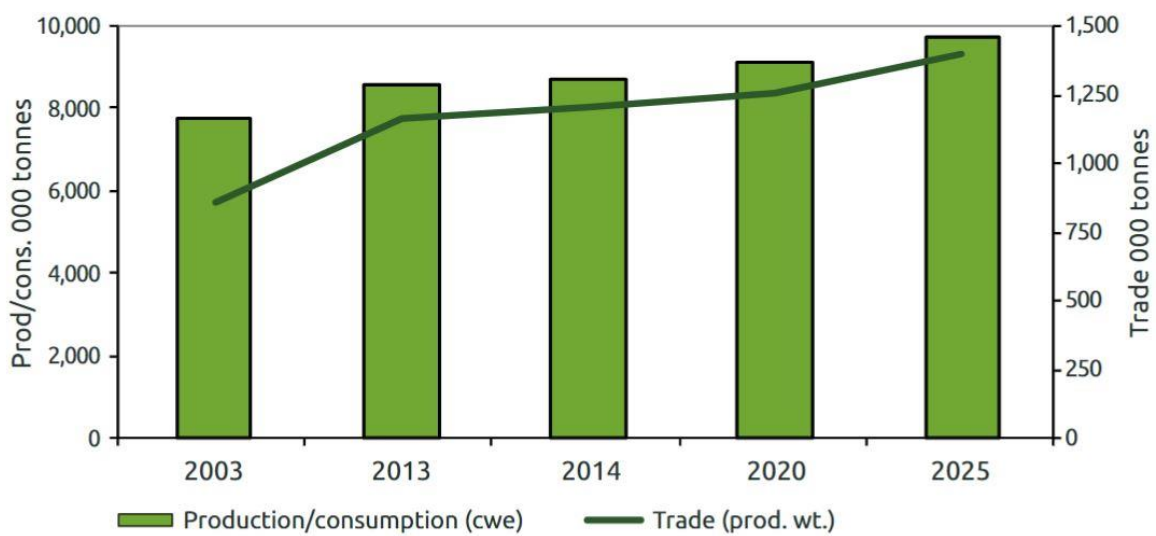


Figure.3. Global sheep meat consumption and price, 2000-2023 (includes goat meat) (AHDB, 2016).



that both countries have the highest sheep population and are affected by the strong winter season (Skonhøft, Austrheim, & Mysterud, 2010). Norway has a natural landscape along with the long-running Scandinavian mountain range with a fragmented coastline and thousands of fjords and islands. The area of agriculture is limited due to extreme winter, but the climate is suited to cultivate the grass and herbs during the summer season (Asheim, & Mysterud, 1999).

Archaeological history shows that agricultural activity began in Norway during the era of 3800 and 3000 BC (Myhre et al., 2004; Lennon, 2017). It is difficult to say that when the first sheep came to Norway (Lennon, 2017). Approximately 5000 years ago, sheep, goat, and cattle were kept in permanent settlements in Norway (Asheim, & Mysterud, 1999; Ross et al., 2016). Domestication of the sheep contributes to the economy of the country and helps to increase the meat supply (Lennon, 2017). The number of breeding sheep is approximately 70 thousand in Norway (Skonhøft, 2008). Although there are 57 ewes per km² number of variation between ewes are more massive from hectare to the hectare (Skonhøft, 2008). Therefore, it is challenging to get reliable data about sheep numbers because there is no official registration of the individual sheep (Skonhøft, 2008).

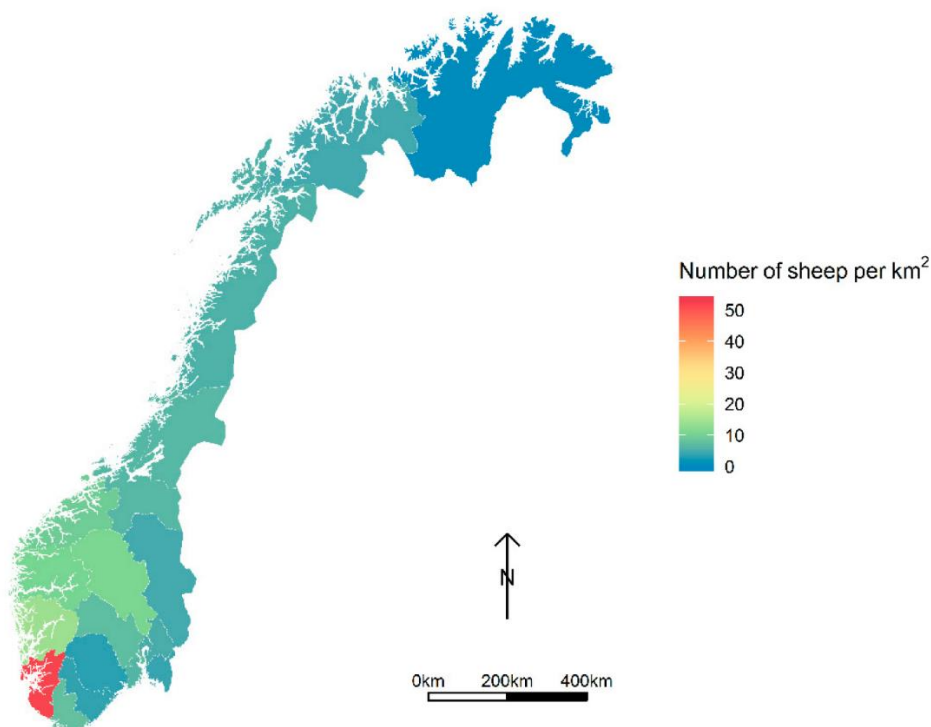


Figure 5. Sheep population density (per square kilometre) in Norwegian counties according to home farm location (Bhatti et al., 2019).

There are many kinds of sheep breeding in Norway, but two are most common that is Norwegian White Sheep (NWS) and short-tailed, double-fleeced Spel sheep (Spel) (Bhatti et al., 2019). The NWS and Spel are considered 71.5% and 19% of the total Norwegian sheep population, respectively (Bhatti et al., 2019). The breeds are supported by national breeding programmes, especially for improving lamb growth and fertility (Eikje, Ådnøy, & Klemetsdal, 2008).

The majority of Norwegian sheep farming system depends on natural summer grazing, open ranges pastures, and forested areas by sheep, goat, and cattle, from where almost 40 to 50 % of the total annual feed allowance is obtained (Asheim, & Mysterud, 1999; Asheim et al., 2013). Usually, lambs are born during the time of late winter or early spring, but sheep and lambs graze on fenced land before being released on the open forested area. The sheep animals are gathered in September and then selected numbers of sheep to send to the slaughterhouse (Bhatti et al., 2019). Although none lambs are not reached to slaughter weight during summer grazing, these animals transferred to fenced autumn pastures with concentrate feed for 3-4 weeks to reach a commercially acceptable body weight around 42-45kg (Bhatti et al., 2019). After autumn grazing on farmland, sheep back to feed indoors (Asheim, & Mysterud, 1999). Today about 68% and 29 % of the outfield pastures feed intake by sheep and cattle respectively (Asheim et al., 2013). However, sheep grazing could be helpful to conserve the biodiversity of plants to retain sustainability in pastures fields (Asheim et al., 2013). Moreover, the farmers of the coastal areas got open range lands for sheep grazing but inland areas farmers not enjoy the leverage of proper land and entirely based on the indoor farming system (Cao & Li, 2013; Bhatti et al., 2019).

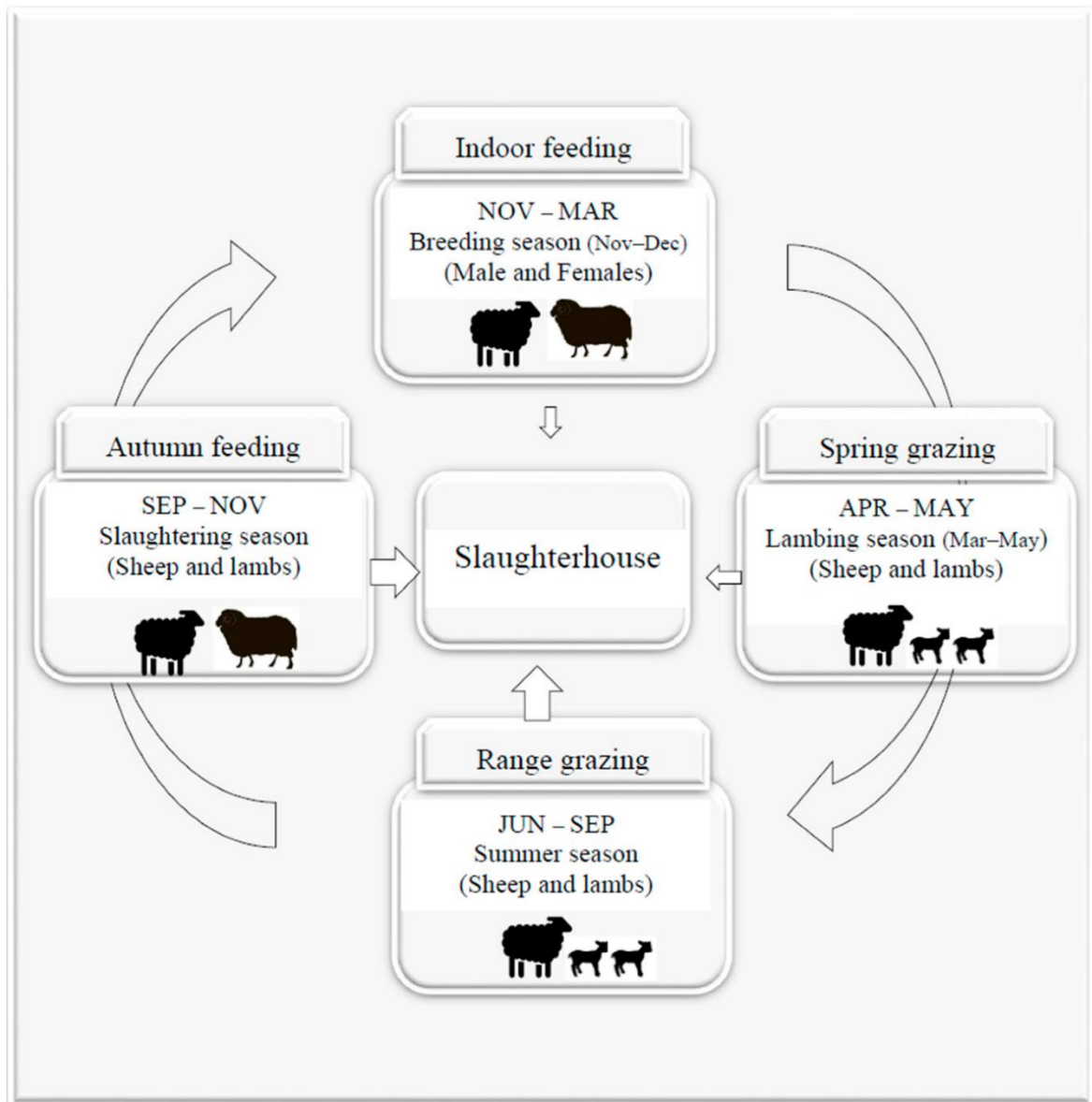


Figure 6. A typical Norwegian sheep production system (simplified layout). The length and placement of solid arrows pointing towards the slaughterhouse indicate the number of animals sent to the slaughterhouse and the time of year from the production cycle (Bhatti et al., 2019).

In the winter season, approximately one million sheep are fed indoors (Bhatti et al., 2019). During the winter season, the sheep industry is limited in indoor-house feeding that causes of the extra expenditure and labours burden on sheep farmers. On the other hand, summer is fruitful for sheep farming due to open grazing on rangeland pastures (Bhatti et al., 2019). However, the sheep population increases to 2.4 million after lambing in winter (Åby et al., 2014). Nine of the 19 Norwegian counties have produced almost 80% of the total lamb carcass (Bhatti et al., 2019). The sheep farming system is most important in the Western and South-

western regions of Norway with 53% of sheep presence in these regions (Asheim, & Mysterud, 1999). Rogaland County is located Southwest coast and is the most important sheep meat producing region, responsible for more than 27% of the total lamb carcass (Bhatti et al., 2019). The provided numbers of sheep have registered the sheep farms location, but it could vary in summer rangeland-grazing sheep registered to one county to neighbouring counties for grazing (Bhatti et al., 2019).

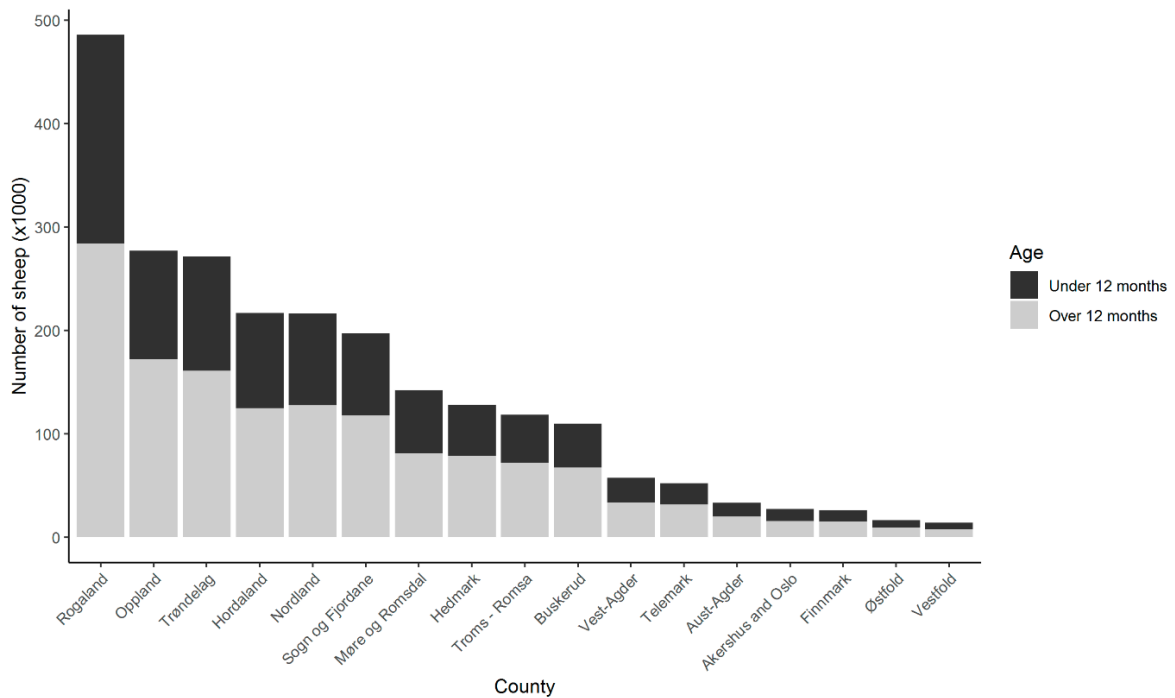


Figure 7. Norwegian sheep population in winter (under/over 12 months of age) in the 19 counties. Nord-Trøndelag and Sør-Trøndelag were merged in 2017 and are now referred to as Trøndelag. Data from Nord-Trøndelag and Sør-Trøndelag have been combined (Bhatti et al., 2019).

A majority of sheep losses due to presence of predators especially in rural Trøndelag and Northern and Eastern Norway regions, which contain about 40% of the total country sheep population (Asheim, & Mysterud, 1999). Almost 25000 sheep farms are located in Norway averaging 44% winter fed animals, and a majority of sheep farms are less than 10 hectares of arable land (Asheim, & Mysterud, 1999). Sheep farming is often combined with fishing and forestry, especially in smaller rural farms (Asheim et al., 2013). The number of sheep farms has declined from 28,887 in 1989 to 14,391 in 2015 (Flaten, 2017).

Approximately 16,000 sheep family farms are located in Norway (Skonhøft et al., 2010). During the summer season, almost 2.1 million animals are grazing outdoor. Therefore, the average farm size consists of 130 animals (Skonhøft et al., 2010). Also, Norwegian farms are located near to mountain and sparsely populated areas that means to transport sheep to unapproachable alpine areas. The meat is a significant product in a Norwegian agriculture system that contributes 80% of the average farm's income in Norway (Skonhøft et al., 2010).

Furthermore, sheep meat farming is an essential product in Iceland with 450,000 winterfed animals (Skonhøft et al., 2010). Moreover, in Greenland, there is land restricted for sheep grazing; the estimated population of ewes was 25,000 in 2007 (Skonhøft et al., 2010).

Norway is the highest sheep meat producer in Scandinavian countries that shows almost 1.3 million lambs and sheep slaughtered in 2017 (Bhatti et al., 2019). The estimated figures for 2016 totalled to 25,600 tons in total, which is an amount more than expected (Webster, 2016). According to the Nortura AS (the largest meat processor in Norway), it has been estimated that around 1.07 million lambs and 170,000 sheep are slaughtered as an average which shows that approximately 25.600 tons of meat are supplied (Pourramedani, 2016; D'Silva, & Webster, 2017).

Sustainable sheep farming provides various types of solution for farming losses. Farming is allowed for areas where lower chances for the existence of predator animals, which helps to protect the species from predators and played a role in sustainable farming activities (Austgulen, 2014). Additionally, sheep farmers can shift the open range grazing towards indoor-house farming for protecting sheep from the predator (Domke et al., 2013).

Sustainable agriculture thereby promoting sheep production (Havlík, 2014) because it is a source of income for Norwegian sheep farmers (Austgulen, 2014). Moreover, the Norwegian government provides subsidies to agricultural farmers for making the sustainable farming system regarding sheep production and management of the Norwegian landscape (Domke et al., 2013; Bhatti et al., 2019). This initiative enhances the sheep productivity and efficiency of the system that sustains the agricultural activity in Norway (Domke et al., 2013). Norwegian farmers need to adjust the production system due to low prices of older sheep one years than lamb in the domestic marketplace (Bhatti et al., 2019). Furthermore, the researchers always seek to investigate opportunities for improving the market condition to make sheep farming more sustainable and profitable (Bhatti et al., 2019).

1.3 Meat production and consumption

The global meat production and consumption have tripled over the last few decades, but from the last ten years, it has slightly lower growth worldwide (worldwide institute, 2019). Recently, Asian countries are producing 45 to 50 per cent overall meat as compared to the rest of the world (Ritchie & Roser, 2017). However, previously Europe and North America were the largest meat producers and Asia was contributing only 12 percent of overall meat production (Ritchie & Roser, 2017).

Globally, China is the largest sheep meat producer and growing substantially for becoming a top producer, although world sheep production has increased, lamb meat demands more than supply due to rapid human population growth (AgMRC, 2018). In Australia and New Zealand, sheep inventories have declined to 22 and 23.7 million head respectively in 2016 (AgMRC, 2018). While sheep production has increased in India, Pakistan, and North Africa. Globally, world lamb and mutton productivity have increased mainly in India and China over the past decade (AgMRC, 2018).

Although the annual sheep meat production was approximately 14 million tonnes as compared to 100 million, 90 million, and 65 million tonnes meat production respectively pork, poultry, and beef in 2008 (Hanekom, 2010). However, the average meat consumption is 41.6 kg per person annually (Hanekom, 2010).

According to the Statistics Bureau of Norway, the meat production was 332,800 and 351,285 tonnes in 2015 and 2017, respectively (SSB, 2016; SSB, 2018). The statistic shows an increase in all kind of meat production in Norway. Over the last few years, between 2012 and 2017, sheep meat production has increased by 8.4% (Bhatti et al., 2019) but consumption increased only by 0.5% in the same period (Bhatti et al., 2019).

Moreover, the Animalia, Norway, reported that meat consumption has steadily increased in Norway (Taylor, 2017). However, only 7% of the total meat consumed in Norway is sheep meat (Åby et al., 2014). Still, Norway has the second highest sheep meat consumption per capita among the Nordic countries (Bhatti et al., 2019). Other sources highlight that lamb consumption has decreased by 15% or 0.6 kg per person (Taylor, 2017). On the other hand, Norwegian sheep meat industry comprises one million ewes, with an annual per capita mutton consumption of 5.4 kg (Asheim, Eik, & Dellal, 2013; Ross et al., 2016; Bhatti et al., 2019).

At present, the Norwegian Muslims population is between 50 and 100 thousand across the country nearby, Sweden and Denmark; there are larger Muslim communities (Asheim et al., 2013). In Europe, the Muslim population is approximately 7 percent. Islam is the fastest growing religion on earth and worldwide 1.4 billion people as Muslims (Asheim et al., 2013). In 2010, Muslims represented 23 % of the world's population, and Islam is the second largest religion after Christianity (Sherwani et al., 2018; Bhatti et al., 2019). Furthermore, the Muslim population is estimated to grow to 29.7% of the global population in the year 2050 (Drew DeSilver, & Masci, 2017; Sherwani et al., 2018). In Europe, Muslims population were 44.1 million in 2010, but it is projected that it could be 58.2 million in 2030. This reveals that halal food has a bright future across Europe (Sherwani et al., 2018).

Slaughtering facilities in Norway

Currently, there are 29 slaughterhouses in Norway, which are located in various places around in the entire country. Of these 14 are owned by Nortura AS, three by Fatland AS, and 12 by several small enterprises, respectively (Animalia, 2017). August to November is the peak-slaughtering season, but meat is stored in central meat chiller storages to be utilised for the rest of the year. A mutual understanding between the major meat processors sets meat distribution quotas, and Nortura regulates meat prices. During 2008, 24,115 tonnes sheep meat was produced (Bhatti et al., 2019) but only 200 tonnes (0.8%) of this sheep meat was halal (Lever et al., 2010). Still, halal meat production had increased, and Nortura, the most prominent Norwegian meat processors company, now has 900 tonnes of halal meat products a year, which is showing that there is a demand for halal meat in the Norwegian market (Lever & Miele, 2012; Bhatti et al., 2019).

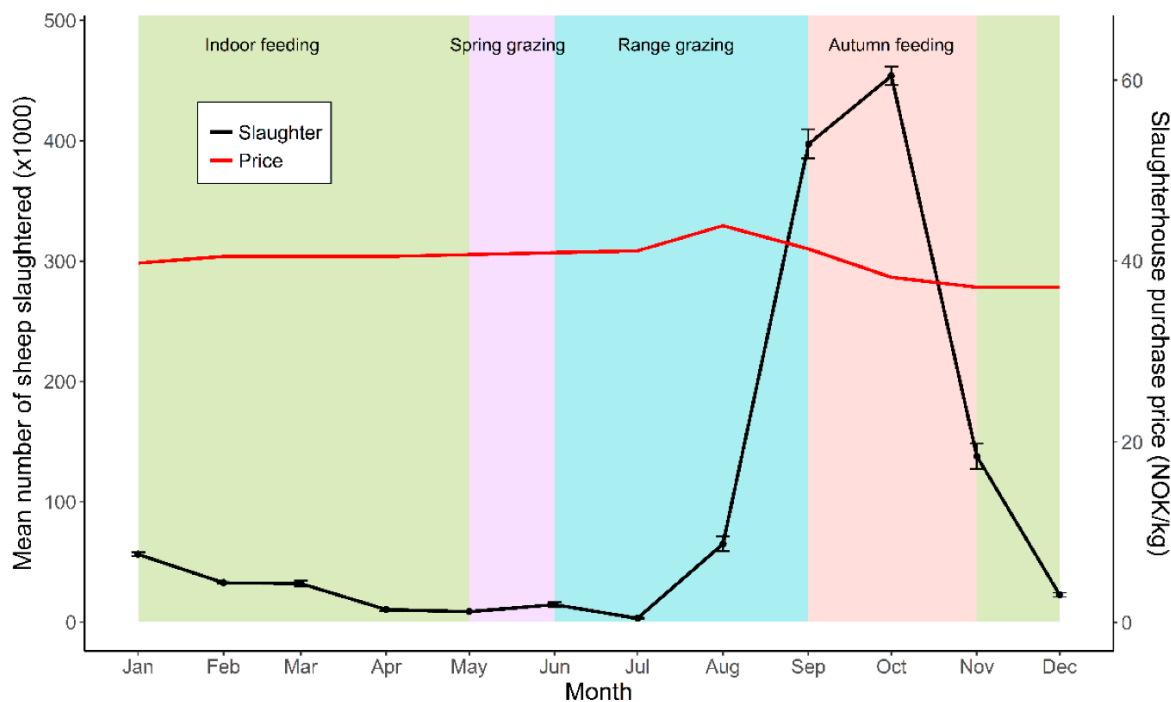


Figure 8. The number of sheep and lambs slaughtered per month and year (2014–2017) and average slaughterhouse purchase price (2017–2018) (Bhatti et al., 2019).

Consumer and religion

Religion meanings and effects vary regarding food consumption of consumer due to social norms and personal choices (Lindridge, 2009; Farouk, & Fathima, 2017). According to Noland (2007), religious belief and faith affect consumer behaviour, whatever a person's religion is. Mokhils (2006) indicated that consumer behaviour is affected by religious belief due to two primary sources: the spiritual belief (that people who belong to religion spirit or strict dietary laws) and the individual consumer behaviour (as forged culture, attitudes, norms, and values, which all of these factors are influenced by religion) (Farouk, & Fathima, 2017).

However, consumer dietary food consumption behaviour changing due to religious regulation, beliefs, and faith, which might vary from consumer to consumer (Mokhlis, 2006; Choi, Kale, & Shin, 2010). As per Alam, & Badrul (2011) indicated, religion is an essential cultural factor that influenced by consumer behaviour regarding both individual and social levels (Farouk, & Fathima, 2017). Although religious belief is part of the culture which affected individual consumer behaviour, actions, and decision. Yousaf and Shaukat (2013) confirmed this view that Muslim consumer behaviour varies due to religious belief, faith, and level of involvement

(Farouk, & Fathima, 2017). This research shows that Muslim consumer highly influenced by a religious obligation in purchasing halal meat products (Farouk, & Fathima, 2017).

Food is the gateway for the full experience and enjoyable necessity of life. In many religions people prayers before and after a meal due to religious tradition, faith, beliefs, and custom. All religion impose different rules and regulation on their believers whether what is allowed and what is not allowed to eat (Farouk, & Fathima, 2017).

Muslim consumer follows dietary rules according to the “Quran” and “Hadith” or “Sunnah” which offers complete guidance to Muslim consumer in purchasing choices of halal food (Atalan, 2015). Also, Muslim dietary rules regarding the halal concept, promote the global commercial food and halal meat market (Atalan, 2015). Even though Muslim meat consumer choice is in proportional to food purchase in terms of the trust, assurance in consuming halal food under Islamic laws. Halal meat also represents an indicator of hygiene, quality, and safety for non-Muslim consumers (Ambali & Bakar, 2014).

1.4 The Relationship between food and culture

Food consumption and food behaviour is a fundamental part of every culture (Pazzaglia & Williams, 2012). Culture is an essential segment of every society that affects consumer buying behaviour, which belongs to different groups, regions of the society (Gajjar, 2013). Culture plays a crucial role in food consumption as well as its representatives to each society tradition and custom across the world (Farouk, & Fathima, 2017). Although culture explains differences in adherence to religious food dietary prescriptions (Jamal & Sharifudin, 2015). The consumer commitment with religious belief is an essential component for a family regarding purchasing food (Farouk, & Fathima, 2017). However, food needs and choices represent to human being life, culture, society and tradition (Classen, 2007). Nowadays, we live in a modern era of science and advanced nation. Therefore, we need to give importance to food quality, safety and culture factors. Different types of food varieties are available in the market for the consumer but most of them confusing to select the right food decision regarding purchasing (Ambali & Bakar, 2014). Even though the term halal food is popular among the people due to food cleanliness, safety, quality, and purity. Therefore, the growth of halal food products is increasing in the global market by consumer demands and positive attitudes due to quality perspectives, services, trust, image, and satisfaction (Eisingerich & Bell, 2007).

Impact of lamb meat production system on consumer behaviour

Sheep production systems vary from region to region due to environmental conditions and agricultural practices (Sanudo et al., 2007). Sheep production systems are affected by consumers lamb meat consumption preferences which are associated with various cultural and religious aspects, consumer attitude, moral consideration, beliefs, and feeling. The most important factor is sheep feeding that affects meat production and lamb quality. Difference between animal feeding characteristics by grass feeding and concentrate feeding which is affected by lamb meat taste (Montossi et al., 2013).

Consumer's meat consumption habits play an important role in the sheep production system. It explains different consumer attitude towards lamb meat as well as an affected consumer purchasing decision (Montossi et al., 2013). Although consumer prefers to eat lamb meat from the grass-based production system as compared with lamb concentrate-fed. Also, consumer beliefs and expectations on the grass production system produce more natural, healthier, and tastier meat than more intensive grain feeding system (Furnols et al., 2011). Furthermore, consumers preferred lamb meat from pastures than from low-land pastures due to better taste, more natural, healthier lamb meat, as well as care of the environment and animal welfare issues (Montossi et al., 2013).

Lamb meat origin country/place effects on consumer behaviour

Origin is an important factor that affects consumer preferences regarding food purchase decision-making process. Because sheep meat production varies from region to region across the world due to different environmental conditions, breeds, housing, intensification, management practices, and animal feeding system. These components play an essential role in sheep meat quality and production (Chambers et al., 2007; Sepulveda et al., 2011). Also, the majority of meat consumers prefer local and national sheep meat due to fresher, tastier and better quality (Chambers et al., 2007). Due to this reason, consumer evaluates lamb meat quality and production base on the origin. Because consumers from different backgrounds having different preferences about lamb meat assessment (Montossi et al., 2013). Furthermore, consumer preferences, beliefs, feelings depend on lamb meat origin attributes either positively or negatively (Obermiller & Spangenberg, 1989; Pauselli et al., 2009).

The consumer origin preferences contain characteristics such as economic development, neighbouring and cultural similarities etc. consumer beliefs own country products rather than

imported products that affects negatively on the country economy. Therefore, consequently, consumers prefer to buy local products. Historically, in some countries low sheep meat consumption due to intense flavour and odour, but on the other hand, large sheep meat population are consumed in, e.g. the Middle East and New Zealand due to the unique flavour. Various studies show that consumer prefers to local sheep meat, but some of the consumers gave less importance to the origin of the lamb meat (Montossi et al., 2013).

European consumers prefer to buy local lamb meat than meat from lambs other countries (Furnols et al., 2006). On the other hand Canadians, consumer's preferences did not detect significant differences among the lamb meat flavour such as outsider countries Australasia and New Zealand. Also in some research studies observed that the origin of the meat is an indicator of meat safety and quality for consumers (Cowan, 1998). Although meat origin brand information helps the consumer in purchasing decision. However, Organic lamb meat label has a positive influence on consumer expectations. Furthermore, traceability and certification are essential components of consumer assurance (Montossi et al., 2013).

Imbalance Norwegian sheep meat production and consumption

There are imbalance sheep production and consumption process system that causes to demolish economy of the sheep farmers in Norway. During 2017, more than 1.3 million sheep meat (27,445 tonnes) were produced for human consumption (Bhatti et al., 2019). However, at the Christmas events, lamb meat demand is high but 1.3 million cannot be consumed (Bhatti et al., 2019). Therefore, a large quantity of sheep meat is frozen for using the rest of the year. Although frozen meat does not provide the same sensory taste, tenderness, and juiciness to consumers like as fresh meat (Lagerstedet et al., 2008; Coombs et al., 2017). Currently, there is no possibility of fresh meat in the "off-season" in existing Norwegian sheep production systems and slaughtering practices, which do not meet the MMF requirements (Bhatti et al., 2019). However, the overall Norwegian market the meat consumption worth was USD 2.75 billion per year included frozen meat worth USD 1.5 billion (Bhatti et al., 2019). Despite meat overproduction, Norway is not able to export sheep/lamb meat but its import lamb meat on average 2-3 % according to need (Lever et al., 2010).

Sheep farmers need to reduce their flock size in the winter season due to higher prices of feeding and housing. Also, older sheep sell price is very low that is a barrier for sheep producers because they do not have any other option to sell their older sheep (> 1 years) at a

sufficient price. In this scenario, the MMF and halal consumer play a vital role to improve the sheep farmers profit unit and maximise to meet the needs of the Norwegian halal market. Farmers have one option to maximise their profit that slaughtering lamb/sheep in autumn (Bhatti et al., 2019).

The relationship between consumer perception and animal welfare

Globally, consumer criticise to agricultural products due to the poor economic decision, polluted environment, unethical and social consequences of global trade (Montossi et al., 2013) but organic products have a positive growth rate in food market during recent years (Zander, Stolz, & Hamm, 2013). From the last two decades, the consumer prefers animal welfare standards for purchasing animal food (Verbeke & Viane, 1999). In western countries, consumers are more influenced by animal welfare standards and ethical aspects of food production rather than prices (Montossi et al., 2013). A study survey indicated that animal origin and welfare is an important driver for the consumer regarding quality assurance (Blokhuis et al., 2003). Also, various studies showed that animal welfare is a vital component while choosing meat. According to the study survey Berg (2002), consumer believes Norwegian sheep farming is the most organic and welfare friendly production system including entire animal production within Norway (Berg, 2002). However, European citizens think that animal welfare and protection is better in Europe instead of other parts of the world, but the majority of European (52%) buy food without evaluating animal welfare issue (Montossi et al., 2013). Some studies revealed that animal welfare is less important than for example animal feeding, origin, food appearance and price (Montossi et al., 2013).

Consumer perception differs about animal welfare from gender to gender due to education level, occupation, age, and country origin. However, well-educated and high-income level consumers are very conscious of animal welfare (Grunert & Valli, 2001). The animal welfare factor is gaining importance all over the world meat exporting countries. Consumers depend on animal welfare and feeding and prefer to pay high prices of organic lamb meat. Consumer prefers to feeding systems based on pasture, grass, forage, and Grass Mountain based rather than cereal-based. Therefore, sheep meat industry should be preferred feeding of animals according to consumer meat preferences (Montossi et al., 2013).

Consumer food choices do not only depend on nutrition value, but it also represents moral and practical value worldwide (Grimshaw, 2013). Due to moral and ethical beliefs lead to promote

animal welfare in terms of rejection of killing animals (Grimshaw, 2013). For instance, animal husbandry increases social concerns regarding animal welfare for food production (Frewer et al., 2005). By increasing the awareness of animal welfare among consumers (Lusk et al., 2008) which promotes animal welfare and meat industry standards. For instance, McDonald's and Burger King adopted animal welfare standards for improving this concept (Grimshaw, 2013). This development helps to understand consumer preferences regarding food production under different conditions of animal welfare (Nowood et al., 2011).

A study survey indicates that 48% consumer in the USA considered animal welfare is important to very important and European meat consumers showed animal welfare score 7.8 on a scale from 1 to 10 (Hanekom, 2010). From the last few years, there is no impact on production systems by increasing animal welfare issues among society; it is not effected on consumer preferences and behaviours regarding purchasing meat products. Also, consumers are willing to buy meat products higher prices which are adhered to animal welfare guideline including rearing, transporting, and slaughtering (Hanekom, 2010).

There are two types of livestock production systems; intensive and extensive production systems. Consumer concludes that intensive production systems have adverse effects on animal welfare, but the extensive production systems influence positively on consumer's meat preferences due to pastures/feed intake in the natural environment (Hughes, 1995).

Consumer's preference and exploring new meat market niche

Consumer's preferences regarding meat consumption show that the meat consumption practices that have been adopted across the world are highly inclined towards product quality and safety (Gaughan, 2017). Nowadays, families are preferred to buy certified meat products (Cottle & Cowie, 2016). The preferences of the people are highly dominated based on the socio-demographic factors that allow assessing the consumption patterns of the individuals (Vagnoni & Franca, 2018). Raineri et al. (2015) have reported that the consumers are highly focusing on the consumption patterns along with the methods through which the meat is being produced. This is evolving the trends of production from conventional methods to the organic methods of meat utilisation.

Consumer preferences and purchase behaviours are analysed by different intrinsic factors (flavour, juiciness, tenderness, fat) and extrinsic cues that included animal welfare, price, environmental impact, meat production and nutritional information (Hanekom, 2010). These days consumer prefers the meat produced in an environment-friendly production system, promote sustainability, and comply with animal welfare attributes (Hanekom, 2010). Moreover, consumer evaluated meat quality by colour and fat and confirmed after consuming the meat product by tenderness, juiciness, taste, and flavour (Acebron & Dipico, 2000). However, consumers prefer to eat tender and juicy meat due to better taste attributes (Risvik et al., 1994).

Consumer preferences to eat lamb meat products depend on flavour and aroma intensity that shows importance of ruminants animals feed intake while growing such as pastures green land (Hanekom, 2010) because the pasture feed of sheep is directly correlated with a different flavour as compared with the concentrate fed sheep (Rousset-Atkin et al., 1997). Nowadays, the majority of consumers prefer to eat lean meat products and have higher health concerns. Also, the consumer prefers to buy meat products on high prices which are certified and adhere to animal welfare guidelines including rearing, transporting, and slaughtering conditions (Hanekom, 2010). However, from the few years, the production systems on animal welfare issues do not have a significant effect on purchase behaviour, but it is becoming a critical factor that influencing consumer preferences (Hanekom, 2010). Although consumer prefers to eat meat produced from the natural extensive production systems as compared intensive production systems. Moreover, farmers and producers also interested in the growing demand for animal-friendly products within natural environmental production systems. Therefore, meat consumers are more aware of environmentally friendly livestock production (Hanekom, 2010).

Consumption of fresh meat products analysed by the quality is influenced by meat prices and per capita income (PCI) (Hanekom, 2010). A study revealed that in developed countries by increasing 1 % disposable income impact negative on the consumption of lamb meat (0.54% decrease) that shows lamb meat is considered inferior quality as compared to beef by consumers (Hanekom, 2010). Also, some researchers found that there is positive correlation exist between lamb consumption and per capita income (Shiflett, 2015; Bekkerman, Brester, & Tonsor, 2019). Moreover, less income of the consumer force to consume cheaper sources of nutrients such as poultry because consumers are susceptible regarding meat prices especially in developing countries which reveals 1 % increases lamb prices could be decline

1.09% lamb meat consumption (Morris, 2009; Hanekom, 2010). Additionally, the lamb meat demand could be increased by increasing beef prices in the market (Capps, & Williams, 2011; Ghosh, & Williams, 2016). However, the lamb industry market needs to expand the demand of lamb meat through improving quality, lamb production efficiency and retail prices, convenient, innovative, and healthy products that could be attracted for high-income consumers (Hanekom, 2010; Capps, & Williams, 2011; Ghosh, & Williams, 2016).

Muslim consumers have specific preferences regarding the halal nature of meat under Islamic laws worldwide (Alqudsi, 2014). Halal meat consumption shows a commitment to Islamic laws (Alhazmi, 2013). Separation of halal and non-halal products is fundamental to gain the trust of the Muslim consumer. Nowadays, Muslim consumers prefer to buy halal meat, which is meat stamped by the halal logo on the packing without doubting (Alqudsi, 2014).

Muslim consumers prefer to halal food products due to Islamic obligation and laws. Halal means permissible or lawful (Sherwani, M., Ali, A., Ali, Hussain, & Zadrán, 2018) and opposite word is haram which means unlawful (Ali, Xiaoling, Sherwani, & Ali, 2017). Muslims follow their dietary standard prescribed according to the Holy book of Quran. However, the halal dietary laws are not limited to determine which food are lawful regarding slaughtering method of animals (Sherwani et al., 2018) but it is the complete process which comprises the animal food slaughtering, proper storage, hygiene and sanitation of animals under Islamic laws (Regenstein, Chaudry, & Regenstein, 2003).

Today, the Norwegian consumer is shifting meat consumption from red to white meat (D'Silva, & Webster, 2017). This factor is increasing the business of poultry and farm-based animal rearing culture. According to Ferguson et al. (2017), the global reduction of the decrease in consumption of red meat is forcing the consumers to opt toward the utilisation of white meat. The consumers who are opting red meat try to emphasise the consumption more on mutton and sheep meat as it is considered to be less damaging comparatively (Niles, Garrett, & Walsh, 2018). This is a factor showing that purchase decision are evolving into healthier purchasing decisions. The quality preferences are becoming the new social norm, and this allows the determination of multiple aspects of experiences and preferences (Niles et al., 2018).

This particular study examines the Muslim meat preferences, and consumption trend on religious festivals and the daily halal meat eating preferences that are exploring the Muslim

halal sheep meat market niche in Norway. Muslim consumer preference is slightly different because they prefer fresh meat to eat (Havlík et al., 2014). The study focuses on the challenges faced by farmers during the sheep farming system. Through this research, the consumptions and purchase patterns of the people will be discussed by identifying the current challenges and change in patterns that have been sustained by the sheep farmers operating in Norway (Rawat, Sanwal & Saxena, 2016).

2. The problem space: a review

2.1 Halal meat

Halal is a word of the Arabic language which means lawful, permitted, legal, and approved and is commonly used to differentiate between halal and haram what is permitted (called Halal) and what is not permitted (called Haram) under Islamic laws. The haram means not permitted, unapproved, illegal, unlawful, and not allowed under Islamic laws (Wan. Hasan & Awang, 2009). The concept of halal and haram is taken by the holy book of Muslim in the “Quran” and also details in” Hadit” with a whole explanation. The concepts of halal and haram do not refer only to meat and food products, but it is implemented on different goods and services such as finance, pharmaceuticals, and biotechnology (Syed, 2012). There are two sources of Muslim to find out prohibited things according to the Quran and Hadit. These two sources bring many choices for Muslims consumer to consume anything while it is not haram (Syed, 2012).

There are three more terms that are used for *halal* and *haram*, which are three Arabic words “*Mashbooh*”, “*Makrooh*”, and “*Zabihah*”. “*Mashbooh*” means doubtful, or not sure, here about the food products and regarding scholar’s different opinions. Moreover, “*Makrooh*” mean disliked, something that is not sure to be haram, and therefore some Muslim do not like to eat it due to strict Islamic laws (Syed, 2012). The final word “*Zabihah*”, which means animal meat slaughter method under Islamic laws, or shariah that is called halal (Eliasi & Dwyer, 2002). Furthermore, the concept of halal certification was started in the USA in the mid-1960 as a safety, self-identity, and religious obligation of Muslims those are living in a non-Muslim society. The halal certification is an essential factor for ensuring the halal quality meat in non-Muslim countries for Muslim consumers (SGS, 2015).

Muslim consumers prefer to consume halal food which has been prepared under Islamic laws and promote to the influence of religious obligation (Nakyinsige, Man & Sazili, 2012). The halal dietary component is the concept of Islamic sharia law. According to the Islamic dietary laws, all foods consumption are allowed under normal circumstance expect that foods or animals which are forbidden to eat in Islam like pork etc. (Zulfakar, 2015). A meat-based product is strictly regulated until arriving at the Muslim consumers (Bonne & Verbeke, 2008). Halal meat covers the human treatment of the animals and should not overloaded animals on

the truck while transport animals for slaughtering house with minimum pain (Bonne & Verbeke, 2008).

In Islam religion, meat is monitored as the most regulated food products under Islamic laws (Bonne & Verbeke, 2008). Muslim consumer's awareness is highest in Asia, the Middle East and European regions, where they are seeking for authentic halal meat, and meat is here more important as compared to other halal food products (Kabir, 2014; Sungkar, 2008). Moreover, meat is considered halal when it comes from halal animals such as sheep, goat, and cattle because these animals are bred natural and bring in a healthy condition in the slaughterhouse before slaughtering under Islamic laws. Furthermore, sick and dead animals are not acceptable for slaughtering regarding a halal manner (Zulfakar, 2015). According to Ahmed (2008) who conducted a study in the UK, showed that consumers and distribution channels are important in terms of trust building, as consumers prefer to buy halal meat from local butcher shops rather than supermarkets. He found that Muslim consumer will intention to buy halal meat when they rely on shopkeepers selling good halal meat by the certified halal logo and halal certification label on the meat (Farouk, & Fathima, 2017). Moreover, Muslim consumer prefers to purchase halal meat in Islamic owner butchers due to the trust, confident, and religious identity but in Amsterdam, Muslim consumer prefers to purchase halal meat from supermarkets due to ready-meals (Montossi et al., 2013).

Muslims view the halal meat slaughtering system as a more human way as compared to other slaughtering systems worldwide (Kalam, 2015). There are strict rules and regulation in slaughtering the animals under the constitution of Islam. Muslim consumers prefer halal meat and purchase it at a relatively higher price in the market. The halal meat condition met the following requirements: healthy animal, animals must not have been raised at uncomfortable condition, animals must be slaughtered under Islamic laws, slaughtered by a sharp knife, the slaughter-man must mention "Bismillah" and "Allahuakber" during slaughtering, halal meat must be blood-free, slaughtering place must be clean by all kind of bacteria and insect, meat processing must follow food hygiene regulations, animal must be dead before skinning etc., and it is not allowed to slaughter one animal in front of other animals (Kalam, 2015).

In the halal slaughtering system, the animals must be conscious under Islamic laws before slaughtering. However, on the other hand, a standard slaughtering system, which is held in western countries like America, Australia and Europe, Norway included, the animals are unconscious before slaughtering due to gaseous, electronic shock, and gunshot etc. This leads

to “*Makrooh*” meat in Islam, which is not allowed by Islamic laws to eat for Muslim consumers (Kalam, 2015). However, the main focus and acceptable is that animal must be live even after the electrical stunning (lower voltage).

The concept of halal food production

Muslim consumer gives more importance to their dietary laws under the holy teaching of Islam and religious belief (Alhazmi, 2013). However, Islam is a religion that guides all step of life, including spiritual and social aspects, which all are regulated by Islamic laws (Adams, 2011). Also, the religion of Islam, according to Muslims, represents the holistic nature of personal life. Muslim consumer eat halal foods as a declaring strong faith and belief (Henare & Shepherd, 2012), which has positive effects in purchasing decision regarding halal versus haram food products (Alhazmi, 2013).

The social, religious, and financial ideas of Islam indicate a relationship between Muslim consumer and their business and social characteristics. Halal food offers assurance to the consumer that preparation of raw material and slaughter meat under Islamic laws which is safe and clean regarding social characteristics. Moreover, Muslim population growth contributes to the global food market and the development of the Islamic economy. Therefore, the food industry needs to improve to meet the food demand of Muslim consumers. By growing Muslim population provide an opportunity for expanding the halal food industry regarding production and consumption worldwide (Henare & Shepherd, 2012; Alhazmi, 2013).

Muslim consumer relies on religious faith and belief regarding food consumption whether it is genuinely halal or not. Also, the consumer can reject to eat food if they are in doubt its halal or contamination non-halal food ingredients due to religious beliefs although Muslim consumer prefers to buy halal food which contains all information on the product including manufacturing, packaging, transporting, and distributing as well as all aspects of food preparation in the market (Alhazmi, 2013).

Generally, Muslim consumers are facing various problems in the halal food market due to a lack of understanding of the knowledge among consumers about what is halal and haram, and this presents an obstacle in purchasing foods. For instance, sometimes consumer being forced to purchase food products even that without surety of halal in different circumstances. Although we cannot consider vegetables and fruits products in comparison to meat products in terms of halal because vegetables and fruits products are halal without contamination other

ingredients (Alhazmi, 2013), Some Muslim consumers have a lack of knowledge, awareness, and understanding about the halal concept which may lead to cause lose the value of halal (Wahab, 2004). The halal food appreciation pattern could be promoted through a hygienic manner and food safety standards (Alhazmi, 2013).

Halal global market

Globally, almost 1.6 billion Muslim consumers are following their Islamic dietary laws regarding halal and haram foods (Ireland & Rajabzadeh, 2011). Muslim consumer comprises 23 % of the world population but most of them living in the Middle East and the Asia-Pacific region (Alhazmi, 2013). The halal food market is one of the largest markets in the world with approximately worth 635 billion US dollars per annum in the global food market (Montossi et al., 2013; Gillani, Khan, & Ijaz, 2017). However, halal lamb meat production has potential in the European and American market as well. For instance, Muslim consumers spent 15 billion US \$ and 7.6 billion US \$ on halal food products respectively in the USA and France in 2011 (Montossi et al., 2013). Also, in the UK, Muslim consumers are considered 5% of the entire population, but they consume 20% of all lamb and mutton produced food products (Montossi et al., 2013). Although in the European Union where Muslims are living as a minority population, the potential for a halal food product is growing fast (Lever & Miele, 2012).

Meanwhile, Norwegian Muslim members are registered 148,000, has increased 33 percent since 2012 (Hills, 2016). According to the figure of Statistics Norway (SSB), Muslim is the second largest religious community in Norway after Christianity which represents 2.8 percent of the population (Hills, 2016) but mostly originating from Pakistan (Bhatti et al., 2019). Muslim consumers are adopting the new consumption patterns under the Islamic traditions and customs that affect the eating habits of the consumer. The religion of Islam follow all aspects of life including food consumption diet (Anir et al., 2008). At the end of 2030, Muslim consumer could be reached 2.2 billion worldwide (Alhazmi, 2013) that enhances the growth halal food industry (Alhazmi, 2013). Based on the rapid growth of the Muslim population need to expand the halal food production market as well in Norway. However, Norwegian Muslims population are projected to be 6.1% out of total population until 2030 (Brunborg & Texmon, 2011). The demand of halal meat will increase new niche market potential for the sheep industry because Norwegian Muslim consumers trust regarding halal in local butcher under the strict Norwegian safety laws (Bhatti et al., 2019).

The halal meat supply chain in the food market

Every Muslim prefers the consumption of halal meat in their daily dietary life (Zulfakar, 2015). There are different interpretations of halal meat due to the inaccurate translation of Arabic word into the different language (Jallad, 2008) and also differences in generation, social structures and different school taught of Islamic education (Bonne & Verbeke, 2006; Tieman, 2013; Zulfakar et al., 2014). For instance, there is a different level of perception among Arab and Non-Arab Muslim countries. When we compared halal perception to non-Arab Muslim with Arab Muslim and found in research that Non-Arab Muslim are more conscious while purchasing halal meat products (Hasim & Othman, 2011).

The rapid growth of the Muslim population develops to the global halal food market which accounts for 16 % of the global food industry that contributes in the economic development of the world (SGS, 2015). According to the World Halal Forum, the worth of halal food is estimated at USD 1.4 trillion per year (SGS, 2015). Also, Muslim consumers are living at 75% and 84% in the USA and France respectively (SGS, 2015) that reveals Muslim consumers always preferred to consume halal meat regarding religious belief (SGS, 2015).

Although more than two million Muslims are populated in 112 countries worldwide who are regular customers of halal food (Khalek, 2014), moreover, Muslim consumer is a fast-growing market for halal food due to the religious conviction on halal (Shah Alam & Mohamed Sayuti, 2011). However, Muslim consumers have a positive attitude and awareness towards halal food consumption and also promote the halal food industry in the world due to religious obligation (Khalek, 2014).

Muslim population growth has a positive impact on the halal meat market worldwide. During 2009-2014, Muslim countries have increased fresh meat consumption 33%, 28%, and 19 % in UAE, Egypt, and Morocco respectively. Additionally, in Asia Pacific countries, fresh meat consumption grows up to 54% in Indonesia, Malaysia, and Pakistan (SGS, 2015). In western countries, where the Muslim population is considered to be a substantial minority in the society, e.g. Germany, France, and the UK, demand for halal meat is increasing in the world market. (SGS, 2015). These days world market is very competitive that required food industry regularly monitors, analyses and evaluate consumer attitude and perception of meat quality to ensure consumer satisfaction that increases the consumers' willingness to pay regarding purchasing meat products (Troy & Kerry, 2010).

Nowadays, the halal food industry is a part of the world market, where every country market would like to adopt the characteristics of the local market that all strategy will not fit as one size work (Sungkar, 2009; Hashim & Othman, 2011). The halal food industry is growing as the largest industry in the world which influenced by the religious belief of Muslim consumer regarding production and consumption (Sungkar, 2008, 2009). Although Islam has become the fastest growing religion in the world and predicted to outcompete Christianity by the end of 2070 (Kusumawardhinia, Hatib &, Daryantic, 2016). However, from the past few years, the food industry has ignored the halal food segment which hinders to the development of halal food industry (Bonne & Verbeke, 2008; Talib et al., 2010). The halal food meat demand is growing worldwide, not only in Muslim countries but also in Europe and South America regions where Muslim consumers live as a minority (Zulfakar, 2015). For instance, according to the report of Canadian International Markets Bureau international halal food trade of \$ 150 billion a year (Bonne et al., 2007). During 1999, the Muslim spending power was \$ 12 billion of which \$3 billion for meat products in the USA (Riaz, 1999).

The halal meat chain is expanding due to consumer interests in terms of animal welfare, cooking, and eating habits (Bonne & Verbeke, 2006). During 2010, the halal food market worth was 500 Million US dollars a year and has been increased the worth more than \$1 trillion which rapidly continue to reach the values of USA\$1.5 trillion in 2018 that facts and figure shows the significant share of halal food products in the global economy and food industry (Zulfakar, 2015; Varinli, Erde, & Avcilar, 2016). In non-Muslim countries where Muslim consumers as consider small minority but the demand for halal meat is very significant by Muslim consumer purchasing behaviour due to religious and cultural belief (Sungkar, 2008). Despite living in non-Muslim countries, the Muslim consumer tries to seek halal meat towards their attitude regarding religious faith (Bonn & Verbek, 2008). Also, Muslim consumer relies on the supply of halal meat from the local butchers rather than the supermarket. For instance in the UK, where the majority of the Muslim consumer trust on the local butcher to buy halal meat as compared supermarket certified authenticity of halal meat. None of the Muslim consumers prefers to check the certification of halal meat even their local butcher shop, but the majority of Muslim consumers are more conscious to check the halal certification of meat when they went supermarket even the presence of Muslim staff (Zulfakar, 2015).

The halal food industry supply chain does not differ from the traditional supply chain. It referred to the process of supplying from the point of origin to the point of consumption including satisfaction Muslim consumers (Zulfakar, 2015). The halal food supply chain

defines as the process of managing halal food products between different points of suppliers and buyers, which involved various stakeholders who are located at different places to prepare the same time halal and non-halal food products with the requirements of the customers (Zulfakar, Anuar, & Talib, 2014) although the halal food supply chain consists of different elements such as halal control, halal certification, and halal monitoring system (Zulfikar, 2015).

The primary role of the halal food supply chain is to protect the halal status until it reaches the Muslim customers because once the integrity has been breached so that product is useless for Muslim consumers according to their faith beliefs (Lam & Alhashmi, 2008; Zailani et al., 2010). The halal food supply chain consists of different parties, with the common goal of ensuring the food products are halal under the Islamic laws (Zulfakar, 2015). Every organisation that is involved in the halal food supply chain must supply halal food to the Muslim consumer after proceeding. Finally, safety and quality are important attributes for production, marketing, and consumption by the consumers including levels of trust in the food supply chain (Taylor et al., 2012). Generally, products packaging pattern including the delivery of meat products with safety that may affect consumers meat purchase intentions and decisions (Van Wezlmael et al., 2011).

Factors affecting the operation of the halal food industry and supply chain

Halal food industry and supply chain should be avoided any non-halal elements during the packaging of the halal meat products, and supply chain process which maintains the status of halal. Moreover, the halal food industry is vulnerable due to not separately handle during packaging, transportation, and storage activities (Zulfakar, 2015). However, segregation in Muslim countries covers such as the risk of contamination, prevention from direct contact with haram and Muslim consumer's behaviour. Also, on the other hand, in non-Muslim countries focus is only preserving from haram elements (Tiemans, 2011, 2013, 2014). Furthermore, a study indicated that both consumers in Malaysia and the Netherlands preferred the separation of halal and non-halal food products during distribution activities (Zulfakar, 2015). Although the demand of halal food products has increased rapidly by preferences of Muslim consumer attitude, it is prominent challenge proper segregation between the halal and haram food products primarily in non-Muslim countries (Jaafar et al., 2011; Tieman, 2013).

The Halal authenticity can be verified by using different laboratory tests, which can detect the non-halal substance in halal food, but it is not available for general consumers while purchasing food products. These methods can be measured by the slaughter method, animal welfare, separation treatment of halal animals, segregation of halal and haram food including halal labelling and certification of all products during supply chain (Nakyinsige et al., 2012; Van der Speigel et al., 2012). However, the halal certification refers verification of food preparation processes including cleaning, hygienic manner, handling, slaughtering, storing, disinfecting, ingredients used, transportation and distribution under Islamic laws (Yousoff, 2004; Badrudin et al., 2012).

Also, the halal certification reduces uncertainties, increases trust and guarantee for Muslim consumers regarding produced food according to the Islamic sharia. Halal certified labelling play a decisive role to attract Muslim consumers in terms of local and global marketing tools. These days a young generation of Muslim consumers are eating food at a restaurant and takeaway, but they prefer to buy fast food at a certified halal restaurant (Zulfakar, 2015). For instance, in Malaysia, a study revealed that halal certification is an essential driver for Muslim consumers regarding halal food industry and marketing strategy tool (Marzuki & Zannierah, 2012). Muslims consumers' awareness of food product plays a vital role in the success of the halal food industry (Mohammed, Shamsudin & Rezai, 2013). However, halal meat preference has not only a positive effect on the Muslim consumer's but also a positive effect on Non-Muslim consumer's intention to purchase halal food (Aziz & Chok, 2013).

Traceability is a process which provides the relevant information of the products to the customer such as origin place, packaging method, food, feed, ingredients and whole production process in the market (Japar Khan, 2008). Also, meat traceability refers to maintain a credible identification for animal products in different stages of the food chain (Shackell, 2008). The term of traceability provides reliable information to the stakeholder in the market about the origin place of product, which helps to investigate the event of the safety and quality breach (Opara, 2003).

Halal traceability systems helpful to investigate halal products, halal integrity, and halal transparency about halal food supply chain (Zulfakar, 2015). This is increased the trust of Muslim consumer in the halal industry due to the reliable tracing information of the products (Zailani et al., 2010) although Muslim consumers are compassionate to know about the origin

of halal food, cleanness, safety, slaughter method under Islamic laws before purchasing food (Japar Khan, 2008).

Integrity and demand for halal meat products

Halal integrity defined by meat quality, which means meat should be halal during the whole manufacturing and supply chain and also free from any activities that might be breach status of halal. Nowadays, halal meat products travel a long distance before reaching the final point of consumption. This situation has created uncertainty among the Muslim consumer regarding the authenticity of halal status (Zulfakar, 2015). Also, the concept of halal preserves the purity of religion, Islamic mentality, life, the future generation, self-respect, and integrity of Muslim consumers (Alqudsi, 2014).

Halal meat integrity can be evaluated through physical and ethical integrity (Hasan & Bojei, 2011; Mohamad & Hasan, 2011). Physical integrity covers all food products attributes including, quality, safety, halalness, cleanliness, health, and nutrition. Ethical integrity covers all aspects of packing, labelling, processing, transporting, distributing, marketing, financing, and selling. Halal integrity plays a vital role to develop the halal food industry (Tieman, 2009) in non-Muslim regions such as Australia and Europe and demand a high level of integrity of halal products (Mohamad & Hassan, 2011). Meanwhile, Muslim consumers rely on trustworthy sellers supply chain due to the integrity of halal food (Mohamad & Hassan, 2011). Although the uncertainty of halal food supply chain has direct consequences on halal integrity, even Muslim consumers are willing to pay higher prices to ensure the halal status of food products (Zulfakar, 2015). Such as in Malaysia, Muslim consumer is willing to pay extra money only for halal food products and halal logistics services (Kamaruddin, Ibrahim & Shabudin, 2012). Furthermore, the integrity of the halal food supply chain covers by halal standard, halal certification, halal traceability, trust, and keep up commitment among the supply chain members (Zulfakar, Anuar, & Talib, 2012).

2.2 Consumer purchase intention

The most significant issue in marketing is increasing consumer purchase intention, and this accounts in each industry worldwide. This critical marketing approach assists managers implement proper strategies according to market demands and promotional programs (Ghadikolaei, 2016). Purchase intention is a process that reflects consumer intention to

purchase or willingness to buy a product and service (Shao, Baker, & Wagner, 2004). It provides the connection between consumers and a product or services in terms of positive or negative (Farouk, & Fathima, 2017). The purchase intention is the primary determining factor of actual buying behaviour (Van der Heijden, Verhagen, & Creemers, 2003).

The religious faith is an essential factor for consumers regarding purchase intention and serves variable (Farouk, & Fathima, 2017). Because religious belief promotes their follower's choices behaviour and purchase intention (Nix & Gibson, 1989). Also, religious belief is a commitment (Farouk, & Fathima, 2017) which covers consumer whole life pattern including consumer behaviour, consumer choice behaviour, and purchase intention (Mokhlis, 2006).

Impact of factors on consumer purchase intentions:

Consumer purchasing behaviour influenced by internal and external characteristics. Internal characteristics contain psychological and personal factors, and external characteristics consist of cultural, social, and situational factors (ElshamesElghawi, 2015).

Demographic factors:

Demographic factors affect the consumer buying behaviour of meat. For instance, a study survey revealed that consumer over fifty years old less dependent on meat products (Malindi, 2010) as well as consumption and consumer buying behaviour influenced by variables such as income, gender, culture, education level, occupation, transportation mode, and material status (Liebenberg, 2016).

Personal factor:

Consumer decision and buying behaviour differ from each other due to the personal priority of product choices. It varies from age to age by consumer preferences because youngster consumer's choices might include entire different than older age consumer's priorities (Lawan, & Zanna, 2013; ElshamesElghawi, 2015). Although the family life cycle is a series which is determined by a combination of age, material status, and with or without children (Lamb, Hair, & McDaniel., 2011). However, consumer personality or habits regarding product selection logo or brands positive impact buying behaviour (Kotler, 1999). Generally, some studies revealed that consumers prefer to buy products and brands that compatible with their self-concept (ElshamesElghawi, 2015).

Social factors:

All human by nature is socially different from each other in terms of social needs due to belonging in various groups (Lawan, & Zanna, 2013). Individual consumers buying behaviour influenced by society or family or references groups due to the use of recognised brand products or services by the leading member (ElshamesElghawi, 2015). Also, reference groups can be influenced a direct and indirect on consumer attitudes or behaviour (Kotler, 2008).

Cultural factors:

Cultural is an essential factor of every society to understanding the individual consumers need and behaviour. The social behaviour in terms of food purchase preferences varies from society to society, or country to country or region to region. Therefore, market researchers are cautious in analysing the culture of different groups in terms of consumer's food habits. Also, individual consumer food preferences or values vary influenced by family, friends, cultural or social environment (Lawan, & Zanna, 2013; ElshamesElghawi, 2015). However, all cultural, subcultural, and social norms factors have a tremendous impact on consumer attitudes and behaviour in purchasing decision, which is transmitted from generation to generation (Lawan, & Zanna, 2013). Although society is composed of various cultures, therefore each culture consists of different subculture such as race, religions norms, nationalities, and regions etc. (ElshamesElghawi, 2015).

Psychological factors:

Consumer attitude varies in terms of brand image and advertising of the products, which affect in buying behaviour of the consumers. Although attitude is a judgment of the consumers that evaluate products attributes on behalf of their objectives or ideas (Kotler, 2009). Additionally, attitudes are a strength of the consumer that depend on own consumer knowledge and personal perception, and it is complicated to change the consumer preferences in terms of product satisfaction (ElshamesElghawi, 2015). However, market players offer different opportunities towards a market consumer attitude in purchasing product (Kotler, 2009).

Motivation is the driver for a consumer that helps to develop purchasing behaviour in terms of particular needs at the specific time, which combines needs of the consumers in order of importance such as physiological, social, safety, esteem, and self-actualisation. However, the

term motivation can influence a consumer decision making in purchasing product (ElshamesElghawi, 2015).

Belief is a personal thought of individual consumers to holds something regarding culture and religion attributes (Kotler, 2004; Kotler, 2006) although consumer belief can be changed by brand image and advertisement of the product (ElshamesElghawi, 2015).

2.3 Meat consumption and consumer behaviour

Generally, meat consumption patterns are unpredictable due to unstable consumer behaviour towards the selection of these products (Escriba-Perez et al., 2017). However, consumer behaviour is essential to fulfilling the expectation of consumers in terms of purchasing decisions (Font-i-Furnols, & Guerrero, 2014), such as for meat products (Becker, Benner, & Glitsch, 2000). Also, the food choices depend on individual consumer perception regarding nutritional value, food prices, quality, safety, a social, economic, and cultural influence factors which help to the consumer made a decision (Xazela et al., 2017).

The study of consumer behaviour consists of the decision-making process included in disposing of products, services, experiences, and ideas (Mowen, 1987; Atautis, Kazakeviciute, & Tarutis, 2014). It meets the demands and needs of each consumer under his/her objectives and goal tools. Consumer behaviour varies from time to time or product to product in the decision-making process including influencer, initiator, buyer, decider, and user (Kotler, 2009; Marketingteacher. 2014). It is a process which involved to satisfy the individual consumer needs and desire including purchase, use of goods, services, experiences, and ideas (Nekudova, 2014). According to a research study of Kotler (1999) that indicated consumer behaviour characteristics comprises the mental, emotional, and physical activity of the consumers while purchasing decision, selecting, using of products and services to meet the consumer expectation. Also, consumer study helps to understand human behaviour regarding psychological, sociological, and economic factors (Mowen, 1987, 1988; Atautis, Kazakeviciute, & Tarutis, 2014).

Consumer decision-making process depends on the attitudes, beliefs, logo label, previous experience, and knowledge that lead to the selection of final choices of products and services (Kotler, 2009; Danijela, Slobodan, Vesna, Dragan, Danijela, Brankica, & Milan, 2011). Although it is a process which identifies the consumer commitment level towards purchasing

goods and services (Kotler, 2009). Also, consumer attitudes and perceptions are directly hit to the meat industry profit unit (Danijela et al., 2011). Moreover, consumers need to recognize numerous information including products labelling, internet, print media, advertising, and recommendation (Danijela et al., 2011; Nekudova, 2014; ElshamesElghawi, 2015). When consumer gathered all information regarding product then will be able to evaluate this product based on their personal experience. Each consumer evaluates in the different weighting of the product due to gathered information knowledge such as brand value, price, services, and product origin (Danijela et al., 2011). Consumer prefers to purchase that product again which has been observed better experience previous used (Danijela et al., 2011; Nekudova, 2014). Different studies reveal that price, taste, convenience, and health considerations are important factors for consumers in purchasing decisions (Simmons, 2009). All of these factors depend on the product quality by a consumer (Vermeir & Verbeke, 2006). Besides, the best marketing department worldwide cannot recommend inferior quality products that cannot fulfil consumer needs (Danijela et al., 2011).

There are two factors which help the consumer for analysing the meat quality such as intrinsic and extrinsic (Acerbrón & Dopico, 2000). The extrinsic quality sign consists of country origin, brand or logo, price, and product presentation. On the other side intrinsic meat quality sign consists of physiological characteristics of the product including colour, taste, fat content, and tenderness (Danijela et al., 2011). Meat nutritional visible information on product label plays a vital role in consumer decision regarding purchasing meat products (Kenkel, 1990). According to a research study of Grossman & Kaestner (1997) that indicated a positive relationship between education and health because better education enhances the understanding of consumers regarding nutrition information during purchasing meat and meat products in the market (Danijela et al., 2011).

Consumer attitudes and perceptions are the most critical contributors to promote the halal meat industry internationally (Troy et al., 2010) as the halal food industry grows by influencing religious belief and changing consumer attitude and perception regarding halal meat quality and safety (Bonne & Verbeke, 2006; Alhazmi, 2013). Moreover, perception is a consequence of factors such as experience, attitude, interest, motivation, and expectation (Alhazmi, 2013). Consumer perception changes due to product qualities and characteristics that affect the supply and demand regarding meat quality, safety, price, and reliability in purchasing decision (Grunert, 2005). Therefore, it is challenging for the world food industry to develop marketing strategies regarding the understanding of consumer behaviour (Onwezen et al., 2012).

However, identifies meat-eating consumer habits can be improved the marketing strategies by educating the consumers (Grimshaw, 2013).

The fresh meat colour plays a vital role in attracting the consumer in the market because it is the first quality attribute seen by the consumer in purchasing decision. However, the red meat consumers are very conscious regarding meat quality and price drivers while purchasing meat products; a survey study revealed that 60% consumers willing to pay 10% extra for the high-quality meat products (Hanekom, 2010). According to the study of Samuel (2007) revealed that fat content, freshness, cleanness and neatness of meat shop, abattoir stamp, and price factors which are most important for quality and safety attributes that effects on consumer purchasing decision (Jabbar, & Admassu, 2009). As per Pan-European survey that revealed consumer attitudes towards food preferences in fifteen different European countries which indicated the top five influences on food choices by consumer such as quality (74%), taste (38%), price (43%), entire family eat preferences (29%), and eat to healthy food (Danijela et al., 2011). These results conducted in fifteen different European states that significantly differed each other due to individual food choices by a consumer (Danijela et al., 2011).

Attitude is a particular feeling and judgment each consumer regarding the brand, packaging, price, religious obligation, the influence of culture, and taste towards food sustainability (Vermier, 2004; Mangal, 2007). This term explains why Muslim people prefer to purchase halal food due to religious education and faith which develops attachment towards halal food consumption (Soesilowati, 2010; Alhazmi, 2013) although attitude is an empirical study that investigates the gap between attitude and behaviour which effects on consumer decision-making process (Vermier, 2004).

The demand for halal food products has increased worldwide included in non-Muslim or western countries (Bonne & Verbeke, 2008). The trend of halal food is not increased only among Muslim consumers but also non-Muslims, as they attract to purchase halal foods due to safety, hygiene, services, and quality, as well as multi-national food chain, is offering halal food products such as McDonald's, KFC, Domino's pizza, and subways (Farouk, & Fathima, 2017).

Consumer meat preferences are influenced by demographic factors such as age, gender, and material status (Liebenberg, 2016). Also, there are theoretically six major components important for consumers in purchasing meat, and these are price, quality, taste, convenience,

nutrition value, and variety (Veblen, 1988; Liebenberg, 2016). Furthermore, consumer preferences are affected by culture and religion factors due to the individual consumer faith and beliefs that have an impact on the food market (Liebenberg, 2016). High-income consumers are normally well-educated consumers, therefore more aware of food issues like as meat quality, tenderness, colour, ethical issues, packaging, and labelling. On the other hand, low-income consumers prefer low food prices due to their low home budget (Liebenberg, 2016). Generally, each consumer wants to utilise his or her money for getting the best eating experience in the purchasing decision (Uys & Bisschoff 2016).

2.4 Consumer preference regarding meat quality and food safety

Consumer attitude and behaviour varies towards the world food industry regarding food purchasing decision due to the meat quality and safety issues (Montossi et al., 2013). However, consumer dietary perception is changing due to the awareness of food safety (Bernabeu & Tendero, 2005; Grunert, 2005). In reasonable condition, meat consumers are not aware of product safety features. For instance, a food-related public perception study survey shows that 37% of food safety was less commonly associated with food quality (Montossi et al., 2013). Although, consumer awareness about food-related issues need more information regarding the food supply chain, food generated and consumed throughout the world (Smith et al., 2005).

The price factor plays an essential role in the consumer purchasing decision. Higher prices of the products indicate better quality and safety of the meat for the consumers. Consumers preferred to buy safety lamb meat though reliable certification, place of purchase, and labelling. Also, market access requirements continue to be a challenge for meat export countries due to the reducing emission, maintain the highest animal welfare and food safety standards (Montossi et al., 2013).

Consumer attitude and perception have improved by many valuable scientific contributions in the food industry towards meat and meat products evaluation especially in terms of stability, quality, and safety (Matekalo-Sverak et al., 2009). A study Rantsios (2007) observed that food safety and quality responsibility lay on individual consumer choices, the meat industry, and competent authorities. Therefore, all stakeholders are responsible and build up two-way Communication Bridge between meat industry stakeholders and consumer in purchasing good quality and safe meat products (Danijela et al., 2011).

Muslim consumers are compassionate for meat quality and safety regarding halal status. Although Muslim consumers are safer and more ethical in Europe due to the availability of fresh halal meat (Montossi et al., 2013). The halal meat quality is control by imposing the Hazard Analysis Critical Control Point (HACCP) (Bonne & Verbeke, 2008a) and it contributes to reducing the doubt of halal among Muslim consumers (Bonne & Verbeke, 2008b). However, Muslim consumer believes and trust in halal meat regarding quality, safety, and health perspectives. Moreover, Muslim consumer prefers to purchase halal meat in Islamic owner butchers due to the trust, confident, and religious identity but in Amsterdam, Muslim consumer prefers to purchase halal meat from supermarkets due to ready-meals (Montossi et al., 2013).

Red meat consumers are very conscious regarding meat quality and price drivers. A survey study revealed that 60% of such consumers willing to pay at least 10% extra for quality meat products (Hanekom, 2010). Although the relationship between consumer preferences and purchase behaviour is complex and is driven by different intrinsic (tenderness, juiciness, flavour, smell), extrinsic (colour, visible fat, purge) cues and individual product characteristics (sustainability, nutrition, safety, ethics, animal welfare) (Hanekom, 2010).

Additionally, juiciness, flavour, and tenderness attributes are considered intrinsic factors that influence meat products in terms of consumer acceptability (Hanekom, 2010). Furthermore, consumers prefer meat regarding acceptability that included attributes tender, juicy, and flavour (Risvik et al., 1994). However, the relationship between consumer perception in terms of meat quality and the food industry's driver is complicated, therefore the food industry needs to improve services to satisfy consumer expectation. These days market is very competitive that required food industry regularly monitors, analyses and evaluate consumer attitude and perception of meat quality to ensure consumer satisfaction that increases the consumers' willingness to pay while purchasing meat products (Troy & Kerry, 2010). There are different factors involve the appearance of fresh meat that effects on consumer purchase behaviour and acceptance (Grunert, 2004; Grunert 2006) due to the bright red colour of meat which indicates the freshness of meat for attracting the consumers (Hanekom, 2010).

Safety and quality are essential attributes for production, marketing, and consumption by the consumers including levels of trust in the food supply chain (Taylor et al., 2012). Generally, products packaging pattern including the delivery of meat products with safety may effect on consumers meat purchase intentions and decisions (Van Wezlmael et al., 2011). Additionally,

increasing media coverage caused an increased pressure for policymakers to maintain high standards for food safety and quality (Taylor et al., 2012). Although consumers have different ideas about food safety as compared researchers and experts (Verbeke et al., 2010). However, consumer's food safety demand concerns by natural grass fed production practices, traceability, and production chain (Hanekom, 2010).

2.5 Barriers in the Halal meat supply and MMF celebration in Norway

For MMF celebration, Norwegian Muslim are facing difficulties in getting halal slaughtered animals of sufficient age and the meat distribution. One hurdle is that the festival dates vary each year and seldom coincide during the sheep slaughter peak time (September-December) in Norway. Although, during MMF time animals are grazing on open outland pastures such as on the mountain and forest pastures (Asheim & Mystrrud, 1999). However, it is not possible for farmers to bring down free-range grazing animals without offering a better price. If the MMF offers a unique market for sheep (>12 months), that could make a better chance for farmers to sell their one or more than one year older sheep on reasonable prices in Norway. Moreover, there is a lack of infrastructure choices for the consumer to access the Halal product on MMF (Bhatti et al., 2019).

Muslim immigrants adopt another strategy to animal sacrifice at the MMF because the majority of Norwegian Muslim immigrants purchased sacrificial animal in their homeland for slaughtering while residing in Norway. Also, sometimes send money equivalent to sacrificial animal price to charity NGOs in their homeland, however, if MMF occurred in Norway that increases the production and also sustains lamb/sheep/goat price which makes prosperous sheep farmers in Norway (Bhatti et al., 2019).

2.6 Muslims Consumer meat purchase intentions

Consumers are very conscious to buy meat products regarding quality and safety. Preferences to eat are towards attributes of health, culture, quality, price, and religion (Bonne & Verbeke, 2006; Nakyinsige et al., 2012).

Halal meat is a significant concern for Muslim consumers regarding awareness in the supermarket with a sign of identity (Mohayidin & Kamaruizaman, 2014). In the past Muslim

consumers rejected all kind of meat products without halal label information. Therefore, halal meat companies and certified organisations stamped by visible halal logos on meat packages (Bonne et al., 2007). Also, Muslim consumer's preferences are important towards attributes of halal meat due to the size of the halal market. However, Muslim consumer's satisfaction is the most vital element towards halal certification and labelling (Mohayidin & Kamaruizaman, 2014).

Muslim consumers to buy food products which already packaged in stores and is essential to paste correct labelling on food products (Mohayidin & Kamaruizaman, 2014). Food labelling impacts on consumer purchase decision that willingness to pay for food. The halal product is not evaluated by individual consumers (Bonne & Verbeke, 2008). However, consumers depend on certified authority that verifies/examines the status of halal food according to Islam (Verbeke et al., 2013). Logo labels on meat product show complete information about the animal bred origin and slaughtered method (Meixner et al., 2018). In many countries across the world, halal certification is not regulated by the governments; that is why Muslim consumers are confused intention to buy food regarding the halal aspect (Mohayidin & Kamaruizaman, 2014). Also, the halal logo is an indicator of Muslim consumers that food can be consumed without any doubt (Moothy & Hawkin, 2005; Narasimhan et al., 2005). Halal labelling on the products provides the information to the consumers of halal certification which increased the confidence level of the consumer in a making purchasing decision (Gillani et al., 2017).

The correct labelling is necessary for Muslim consumers as well as retailers because Muslim consumers will not buy meat without the satisfaction of halal (Ahmed, 2008) although Muslim consumers are very conscious to obtain halal food products in the market (Bonne & Verbeke, 2006). The majority of Muslim consumer's preferences to buy halal certified food products, even they willing to pay higher prices. This thing shows that halal certification is more important than food product prices for Muslim consumer's intention in purchasing decision (Mohayidin & Kamaruizaman, 2014). According to a study halal labelling meat survey Ahmed (2008) among 300 Muslim consumers to find out purchasing behaviour in British supermarkets and local halal butchers. Ahmed found that during his survey, the big problem is a misuse of halal labelling in supermarkets for Muslim consumers. Therefore, the majority of Muslim consumers did not trust in the supermarket when purchasing halal meat and preferred to buy local meat shop run by Muslim sellers (Ahmed, 2008).

According to the Ahmed (2008) study in the UK shows that consumer behaviour and distribution channels about purchasing halal meat from local butcher shops versus supermarkets. In his study result found that Muslim consumer will intention to buy halal meat when they rely on shopkeepers selling good halal meat by the certified halal logo and halal certification label on the meat (Farouk, & Fathima, 2017).

The origin of food plays an important role in increasing attention in the world market (Boliger & Reviron, 2008) which affects the consumers purchasing decision (Meixner et al., 2018). Moreover, the country of origin is a vital factor associated with various certified food products which have higher degree credibility in terms of consumer satisfaction (Boliger & Reviron, 2008; Magdelaine et al., 2008). Also, the consumer's behaviour intention changing through patriotic feelings about their own country and social norms (Han & Terpstra, 1988; Vukasovic, 2009). According to Liefeld(2004), nowadays it is difficult to purchase in every product category which means the country of origin is less important to purchase products as compared to other countries.

Consumers usually prefer to lowest prices in terms of purchasing products. Therefore, a food purchase decision depends on the same mechanism of consumer behaviour (Verhoef, 2005). Although previous research indicated that price and country origin plays a minor role in Muslim consumer's intention to purchase halal meat (Meixner et al., 2018). According to Ahmed (2008), Muslim consumers are most conscious of selecting halal meat instead of price. Therefore, Muslim consumers are willing to pay higher prices for certified halal meat in the market (Verbeke et al., 2013). The current study focuses on halal meat production, which is an important factor for Muslim consumers.

The self-identity is also an important factor which refers to the goals, values, and beliefs by adopting individual consumers (Schwartz et al., 2006). For instance, Islam teaches to the Muslims that hold their religious faith and identity in all circumstances whether they are in the homeland or out of the country (Sherwani et al., 2018). Therefore, Muslims are very sensitive to the concept of halal and harm due to religious obligation (Ali et al., 2017). Nevertheless, Muslims hold religious identity for selecting the food context in a non-Muslim country where they live as a minority (Sherwani et al., 2018). Also, Muslim follows strictly dietary rules due to the halal food concept as compared to other religion dietary laws (Bonne & Verbeke, 2006).

Muslim consumers trust on the halal food due to the influence of religious faith. It is difficult for Muslim consumers to evaluate quality assurance and whether it is halal or haram after consuming the meat. Muslim consumers rely on sellers and put their trust in the seller's information source. Generally, the authenticity of halal food is evaluated by a Muslim consumer in terms of the outlet (is the Muslim owner?). In this case, if the owner is Muslim then the consumer has strong trust on the product will be halal otherwise, the authenticity of halal depends on the assurance of product of label itself (Sherwani et al., 2018). For instance, Pakistani consumers strongly trust on halal logo food observed by the survey (Salman & Siddiqui, 2012). However, Malay Muslim consumers also believe in the halal logo by purchasing decision of food in terms of food quality and safety assurance (Ali et al., 2012). Although those Muslims who are living in the non-Muslim country, it might be possible some of them trust in the authenticity of halal label food and some of them are not. Therefore, those Muslim consumers who have low trust in halal label meat due to their perception and attitude (Sherwani et al., 2018).

2.7 Muslim Festivals

Muslim celebrate two big religious festivals (annually): Eid al-Fitr and Eid al-Adha (Muslimaid, 2017). Both festivals are celebrated throughout the world while the Eid al-Adha is regarded as the "Muslim Meat Festival (MMF)".

In Norway, approximately 4.2 % of Muslims are living of the total population, and they originally came from different countries, continents, and culture as refugee and immigrants (Bhatti et al., 2019). Meat dishes are very common among the Muslims due to the influence of religious festivals EID (especially Eid-al-Adha) (Bhatti et al., 2019). The Eid-al-Adha is MMF where preferably sheep are slaughtered older age (>12 months). Although meat is divided into three parts which are shared equally among the family, relatives/friends/neighbours, and the poor.

Eid-ul-Fitr:

It is celebrated after completing the holy month of Ramadan across the globe (Muslimaid, 2017). The first Eid festival was celebrated in 624 century by the Prophet Muhammad (PBUH) with his family and friends after the victory of the battle of Jang-e-Badar (Humanappeal,

2017). Eid-al-Fitr day calls by Islamic name “1st day of Shawwal” which is the 10th month of the Islamic calendar.

Eid al-Adha festival (MMF)

Eid al-Adha reminds Muslims about the time of Prophet Ibrahim (AS) when Allah asked Ibrahim (AS) to sacrifice his son (Ismail) in a dream as obedience (Mufti, 2013).

“And, when he [his son] was old enough to walk with him, he said, ‘O my son! I have seen in a dream that I am slaughtering you, so see what you think!’ He said, ‘O my father! Do that which you are commanded, if Allah wills, you shall find me patient.’”
(Quran 37:102).

As Prophet Ibrahim (AS) was ready to sacrifice his son by the obeying of Allah’s command. Allah revealed that Ibrahim (AS) your sacrifice had been fulfilled successfully (Mufti, 2013). Below verses from the Holy book showed the importance of this Meat festival in the life of Muslims.

“Their meat will not reach Allah, nor will their blood, but what reaches Him is piety from you....” (Quran 22:37).

It is very important for Muslim to remember in their minds that Allah does not need animal’s blood or meat like goat, cow, sheep, lamb, and camel. Allah wants Muslim Uma to obey Him (BBC, 2019).

“...And whosoever fears God and keeps his duty to Him, He will make a way for him to get out (from every difficulty). And He will provide him from (sources) he never could imagine....” (Quran 65:2-3).

Allah replaced Ismail with a lamb/sheep and therefore, Muslim Sacrifice an animal on the celebration of Eid-al-Adha as a reminder of Prophet Ibrahim (AS) obedience to GOD (BBC, 2019). All over the world, Muslim who are not financially able to perform pilgrimage sacrifice animals (if they can afford) on Eid-al-Adha.

Eid-al-Adha:

“Surely Ibrahim was an example, obedient to God, by nature upright, and he was not of the polytheists. He was grateful for Our bounties. We chose him and guided him

unto a right path. We gave him good in this world, and in the next, he will most surely be among the righteous.” (Quran 16:120-121)

It is celebrated following the 10th day to 12th of Dhul Hajj which is the 12th month of Islamic calendar, annual an estimated 2 million Muslims perform the holy pilgrimage/Hajj with ancient rituals all over the world (Mufti, 2013; Humanappeal, 2017) that pays tribute the devotion of prophet Ibrahim (AS) to Allah in the form of qurbani (sacrifice of an animal such as sheep, goat, and cow in the name of Allah) (Muslimaid, 2017). All Muslim who can financially afford slaughter an animal (such as goat, sheep (>1 year), cow and camel) as a symbol of Prophet Ibrahim (AS) sacrifice in the way of Allah during Eid-al-Adha festival. The sacrificed animal must have to meet specific requirements such as should be healthy, not blind, and lamb minimum age restriction apply as well. The sacrifice animal meat is distributed into three parts which divided to the poor needy persons, family, and friends and neighbours. According to International Business Times reports, each year nearly ten million animals are slaughtered in Pakistan on Eid-al-Adha festival (The week, 2018) that shows the economic value of this MMF in the halal meat market (Bhatti et al., 2019). Muslims are typical routine that day like wear new clothes, waking up early and performing Fajar Salah, performing Eid Salah at Mosque and wish a blessed Eid (Eid Mubarak), greeting the family, cooked different dishes, visit family and friends for greeting and eating together, and ensure Zakat-al-Fitr is paid before Eid Salah (Muslimaid, 2017).

3. The current study: objectives, material and methods

3.1 Aims of the study

Overproduction of sheep meat is one of the reasons for making sheep farming fragile and less economical. We believe that the sustainability of Norwegian sheep farming will be gained if the farmers can get a reasonable price for the meat, also for the older sheep (> 1-year-old). The overall objective was to contribute to a sustainable and profitable Norwegian sheep farming by considering Muslims as a new niche market.

Specific aims were:

- To better understand the meat consumption and preferences of Norwegian Muslims of Pakistani origin in Oslo
- To explore the potential of Muslim Meat Festival (Eid al-Adha) on Norwegian sheep production as a new niche in the meat market
- To investigate the viewpoints of Muslim Imams in Oslo

3.2 Methodology

It is very important to choose the proper tool/strategy/method to meet the objectives of a study (Punch, 2013; Padgett, 2016; Flick, 2018). The current study applied a mixed methods approach (Azorín, & Cameron, 2010; Migiro, & Magangi, 2011; Leeman, Voils, & Sandelowski, 2015; Bryman, 2016). Mixed methods research motivate researchers to use multiple approaches for collecting and analysing data within a single study and recognised the limitations of using a single method (Migiro, & Magangi, 2011). However, mixed methods combine different research methods to solve a problem, which is common in interdisciplinary research and where the problem is quite complicated. In this study, a consumer survey among the Pakistani Muslim community in Oslo was carried out in addition to in-depth interviews with imams and an extensive literature review, which is presented in chapter 2 (The problem space: a review). The references were further applied to explain the findings from the consumer survey in Oslo and the interviews with the imams.

3.2.1 A consumer survey among the Pakistani Muslim community in Oslo

Face-to-face interviews (Sturges & Hanrahan, 2004; Lavrakas, 2008; Oltmann, 2016) of Muslim families were conducted in Oslo district of Norway. The interview sessions were conducted from March-April 2018. These Muslim families were interviewed randomly based on the semi-structured (Adams, 2015) mostly open-ended questionnaire in different areas of Oslo district. In total eight male and seven female heads of families were interviewed. This semi-structured questionnaire developed by the experts at the Norwegian University of Life Sciences (NMBU) and NOFIMA with the involvement of current Master student (me) and one Industrial PhD student at NMBU. The survey questionnaire was designed to capture and understand the Muslim meat consumer preferences, and especially to check the possibility of marketing of older sheep (> 1 year old). This study comprised of face-to-face interview sessions which were conducted for better understanding and reliable sources of the mixed type interview questionnaire. The Pakistani Muslim family were selected based on the personal connections in the Muslim community. Notes were taken, and interviews (60 to 90 minute per interview) were audio recorded. The interview usually started with an informal discussion, and during that discussion, questions were asked by the interviewer.

Proper consent of the interviewee was taken at the start of the interview. The study survey data has been notified to the Data Protection Official for Research, NSD-Norwegian Centre for Research Data. However, formal consent was taken during personal communication with the Imams.

Questionnaire description:

The survey questionnaire was divided into four parts.

- a) The first part of the questionnaire was related general demographic information such as their age, marital status, current address, entire family members, Number of children, occupation, Grocery shopping, the age of spouse, and their education and their annual household income.
- b) In the second part focused on eating preferences, meals intake on holidays and working days, preferences of meat and meat products, shopping habits, preference of meat type and its origin of country, preference of traditional and non-traditional dishes, preferences of animal meat, and preferences to halal and non-halal meat.

c) The third part of the questionnaire highlighted to consumer purchase intentions in terms of meat quality and safety, brands or logos, food purchased and meat preference to buy on local butcher and supermarket.

d) The final part was about meat consumption practices, cooking methods, meat cooking preferences, and ready to eat dishes (RTE).

All the interviews were done in a peaceful atmosphere with the manner of conversation to make the interviewee feel more easy and comfortable all the questions with understanding as well.

During interviewing session single visit multiple-subject technique for data collection (Murthy, 1974; Lavrakas, 2008).

The location Oslo was selected because of the vast majority of immigrants with Pakistani Muslims being highest in number in the study area (SSB, 2019).

For this primary quantitative data collection, Muslim Pakistani families' interviews (Boyce & Neale, 2006; Gust, Namey & Mitchell, 2012) were conducted face-to-face in a peaceful environment. 15 families were interviewed to check their meat purchase and consumption preferences. These were randomly selected among those Pakistani families who are residing in Oslo for more than three years. We had a good experience throughout the data collecting process. The participant Pakistani families' response was praised. The questionnaire was in both language English and Norwegian. It depends on interviewees choices which language was selected to feel comfortable for answering the questionnaire. During the interviews, not every participant understood English. Hence, we also decided to use other native languages such as Urdu and Punjabi to make them more comfortable for interviewees for exploring their ideas and perceptions in details. At the beginning of the interview, each participant was asked to sign a consent form for in-depth interviews which were conducted individually. The consent form was related to their willingness to participate freely in the interview. According to Flick (2018), assemble verbal information is one of the most important approaches especially in qualitative research. We believe that these in-depth interviews were very significant to develop our study. The semi-structured open-ended questions were asked to participants that gave maximum opportunity to explore their information about the subject. Semi-structured interviews have this advantage of capturing more detailed information on the subject (Flick, 2018).

After finishing the survey interviews, all collected data in written notes and audio recorded were transcribed and then transferred into data files. Categorical data were coded and entered in Excel spreadsheets for analysing data by using chi-square tests. Qualitative data were analysed as such, and a literature review was conducted for further answering the research questions. Results from the quantitative analysis were mostly non-significant because of the low number of respondents for quantitative analysis. Also, the qualitative technique was carried out to overview patterns, although the total number was small.

3.2.2 In-depth interviews with Imams

Three Imams (two male and one female), from mosques in Oslo, were interviewed to get insight into different aspects of halal meat and in particular the Muslim Meat festival (Eid al-Adha). The interviews were audio-recorded. The participation of Imams in this study was voluntary, and they were well informed to withdraw from the interview at any a stage and their information will be discarded. The selection of these Imams was based on the convenience sampling (Lavrakas, 2008; Etikan, Musa & Alkassim, 2016) by using the friends and friends of friend's linkages. Also, we spent around one hour per interview.

4. Consumer survey: results and discussion

In this section, the results from the survey conducted from 15 Muslim families in Oslo are presented. The data are presented under the following main themes: demography, meat preferences, cooking and eating meat patterns, consumer purchase intentions, meat animal choices, meat consumption, animal welfare, logo/brand, halal/non halal meat preferences, animal feeding system and other sub-sections that included ready to eat meat dishes (RTE) preference by respondents.

The interviewed families were asked about their place of birth and when did they come to Norway. Only 20% were born in Norway while the rest were born in Pakistan and later came to Norway as immigrants.

The study was balanced in terms of the gender of the interviewee. Since the aim was to interview the families, so all the household families were comprised of husband, wife, and their kids. The respondent's age ranges from 27-70 years. Annual household income ranged from 250 000 – 1000 000 NOK. About 40% of the respondent families were in middle-income range (250 000 – 500 000) NOK/year; 13.33% (2/15) two respondents do not want to share income.

Mostly meal preparation at home was done by the seven respondents 46.67% (7/15) themselves, seven spouses 46.67% (7/15), and 6.67% (1/15) one other family member depending on the availability that who is free. However, I interviewed Muslim imams and a bishop on Muslim Meat Festival (Eid-al-Adha) and Halal meat consumption. The scholar's views are highly significance regarding halal sheep meat market in Norway and improve the sheep prices due to sufficient demand for meat by Muslim consumers. Because Muslim is growing in Norway as regarded the second largest religion of Islam after Christianity (Sherwani et al., 2018). Meanwhile, the consumer preferences are highly influenced based on the socio-demographic factors which assessing the meat consumption patterns of the individuals (Vagnoni & Franca, 2018).

The data shows that a large population of Pakistani Muslim immigrants are living in Oslo from last few decades. They have somehow influence on Norwegian halal meat market. Due to religious and cultural influences (Liebenberg, 2016), majority of Pakistani prefer homemade

lamb/sheep meat, however, on events such as a wedding, a new baby born birth ceremony, Eid etc., people prefer to eat meat dishes cooked explicitly by the professional Indian chefs.

4.1 Halal preference vs. country of birth and vs. education

A majority of respondents prefer to eat halal meat, Pakistani born respondents 66.67% (10/15) prefer to eat halal, but only two respondent 13.33% (2/15) mentioned that if they do not get halal meat then for the time being non-halal can be used. Norwegian born Pakistani three respondent 20% (3/15) eat only halal meat. Three respondents stated that they occasionally ate non-halal meat due to unavailability. These results showed that religious belief, faith, and culture aspect dominant on the consumer perception and attitudes (Fam et al., 2004; Lawan, & Zanna, 2013; ElshamesElghawi, 2015).

From 15 respondents, there were respondents with master education, and among these, 26.67% (4/15) prefer halal meat only. 40% (6/15) of the respondents with bachelor education prefer halal meat. Only one respondent 6.67% (1/15) did not prefer halal meat in this category. 26.67% (4/15) of the respondents had a high school education. They preferred all to eat halal meat. These results showed that practising religious belief, here through eating halal meat, is influenced by education level. However, the majority of Muslim consumer prefer to eat halal due to religious belief and cultural aspects (ElshamesElghawi, 2015).

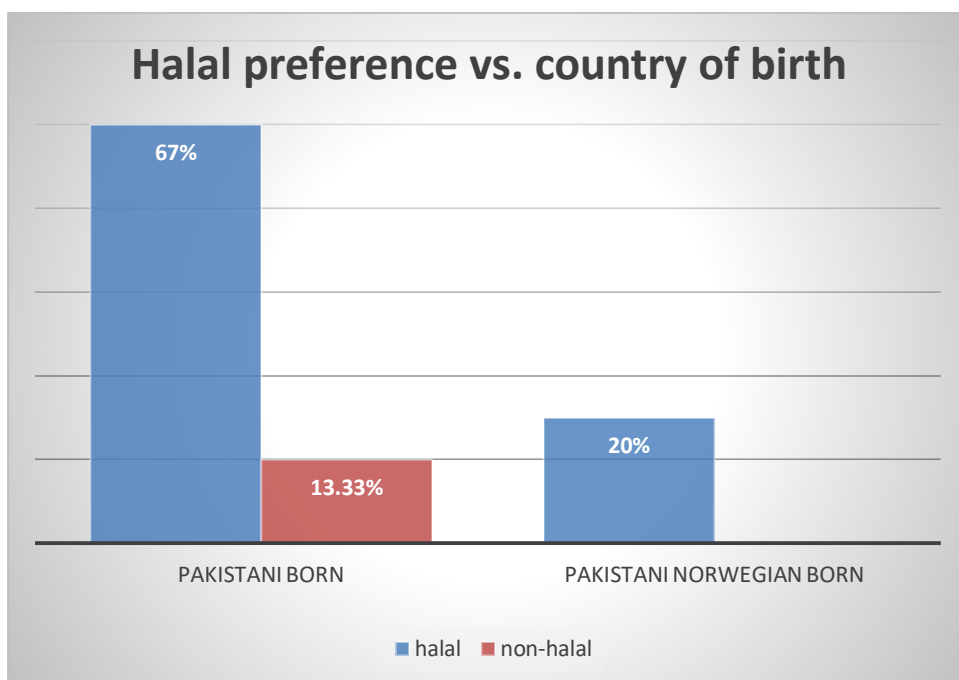


Figure 9. Halal preference vs country of birth.

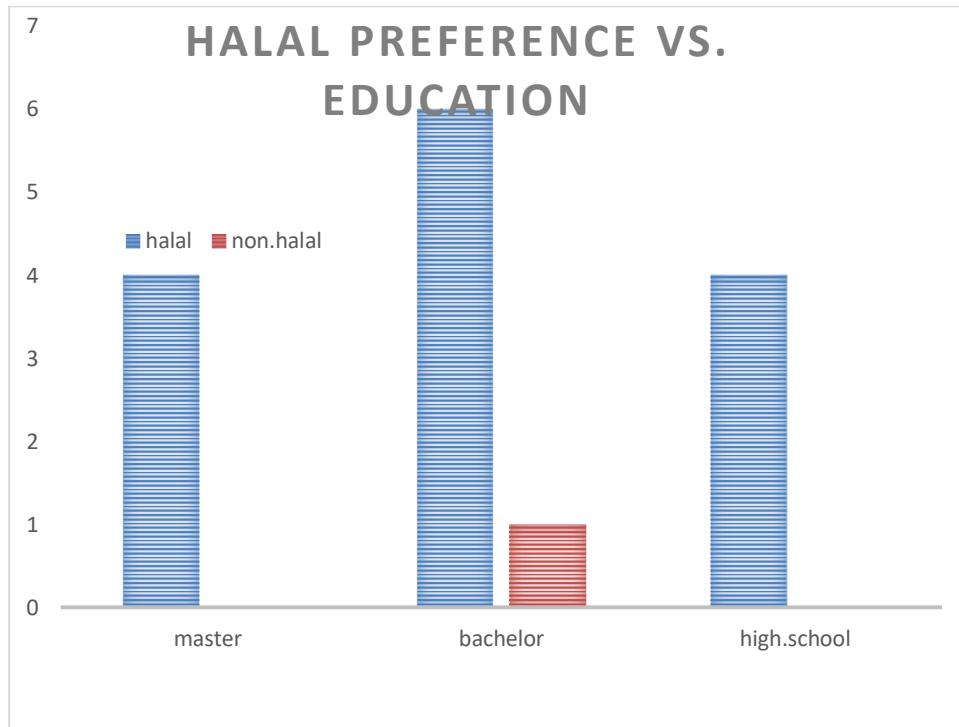


Figure 10. Halal preference vs. education.

Respondents are very conscious regarding halal-certification. Below are some more examples of respondent's views about the "halal certification".

"Halal certification is more preferable because it is then traceable".

"I prefer halal, but if I am travelling and do not find proper halal food then I will go for non-halal except pork".

"Information related to the halal items is mostly mentioned everywhere, so I need to check it always while purchasing food items".

"I only eat halal meat products, and if I do not get halal meat then I always prefer to go for vegetables".

The result of Pakistani family respondents' views shows that Muslim consumers prefer meat products that are certified by recognised Halal meat companies (Bonne et al., 2007; Verbeke et al., 2013; Mohayidin & Kamaruizaman, 2014). This factor enhances the purchasing power

(Gillani et al., 2017) for Muslim consumer in the market without any doubt or contamination non-halal ingredients in the food production (Moothy & Hawkin, 2005; Narasimhan et al., 2005). However, country or place does not matter where they born or grow up/live in the non-Muslim country, Muslim consumer always try to seek halal certified meat products in the market due to religious and cultural influences. These findings are related to the Nortura AS which produced halal certified meat 200 tonnes in 2008, but it has increased until 900 tonnes halal meat production in 2012 within four years (Lever et al., 2010; Lever & Miele, 2012; Bhatti et al., 2019) that clearly indicated the potential of halal meat market in Norway.

It is also parallel to the findings of (Henare & Shepherd, 2012; Alhazmi, 2013; Kalam, 2015; Zulfakar, 2015 ;) that showed Muslim consumers always prefer halal meat even purchasing on the higher prices in the market. Because Muslim consumer consumes halal foods as declaring strong faith and beliefs with their religion. Furthermore, the sick and dead animal is not acceptable for slaughtering in Islam regarding halal manner although Muslim consumer prefers to buy halal food which contains all information on the product including manufacturing, packaging, transporting, and distributing as well as all aspects of food preparation in the market. In the UK, Muslim consumers are considered 5% of the entire population, but they consumed 20% of all lamb and mutton produced food products (Montossi et al., 2013). Despite living in non-Muslim countries, the Muslim consumer tries to seek halal meat towards their attitude regarding religious faith (Bonn & Verbek, 2008). Additionally, in non-Muslim countries where Muslim consumers as consider small minority but the demand for halal meat is very significant by Muslim consumer purchasing behaviour due to religious and cultural belief (Sungkar, 2008).

Although the halal-certified product is an essential factor for Muslim consumers, other food attributes like as price and purchase decision (Meixner et al., 2018). The influence of religion impact on the eating habits of the consumer which deals with faith values, attitude, and taught by generation to generation (Fam, Waller, & Erdogan, 2004). However, religious belief influences depending on consumer attitude or perception behaviour regarding food choices in different circumstances (Essoo & Dibb, 2004; Budiman, 2012; Awan et al., 2015; Yener, 2015). Also, Muslim consumers preference halal food whether they are certified or not but it is religious and moral obligation (Ali et al., 2017).

Although the uncertainty of halal food supply chain has direct consequences on the halal integrity, even Muslim consumers are willing to pay higher prices to ensure the halal status of

food products (Zulfakar, 2015). Such as in Malaysia, Muslim consumer is willing to pay extra money only for halal food products and halal logistics services (Kamaruddin, Ibrahim & Shabudin, 2012). Also, the term halal food is popular among the people due to food cleanliness, safety, quality, and purity. Therefore, the growth of halal food products is increasing in the global market including Norway by consumer demands and positive attitudes due to quality perspectives, services, trust, image, and satisfaction (Eisingerich & Bell, 2007; Bhatti et al., 2019).

The trend of halal food is not increased only among the Muslim consumer but also non-Muslim consumer attracts to purchase halal foods due to safety, hygiene, services, and quality as well as multi-national food chain is offering halal food products such as McDonald's, KFC, Domino's pizza, and subways (Farouk, & Fathima, 2017). However, halal meat preference has not only a positive effect on the Muslim consumer's but also a positive effect on Non-Muslim consumer's intention to purchase halal food (Aziz & Chok, 2013).

4.2 Meat consumer Gender vs. meat quality parameter

Meat cuts preference vs. gender

From the total of 15 participants, 46.67% (7/15) male respondents said "true", and only one 6.67% (1/15) said "false". On the other side, 26.67% (4/15) female respondents said "true", and three said "false" regarding specific animal meat portion. The survey result shows that the majority of consumers prefer to eat special part of animal meat due to taste, tenderness quality, and internal satisfaction.

Meat category vs. gender

In this sample regarding meat preferences, 40% (6/15) male respondents prefer to eat lamb/sheep meat and only two 13.33% (2/15) respondents eating mixed meat. Female respondents 26.67% (4/15) preferred lamb/sheep meat and three 20% (3/15) prefer to mixed meat. The research survey result reveals that consumer gives priority of lamb/sheep meat as compared to other meats due to the cultural and religious determination. However, sheep meat is dominant towards consumer attitudes and perception instead of other meats.

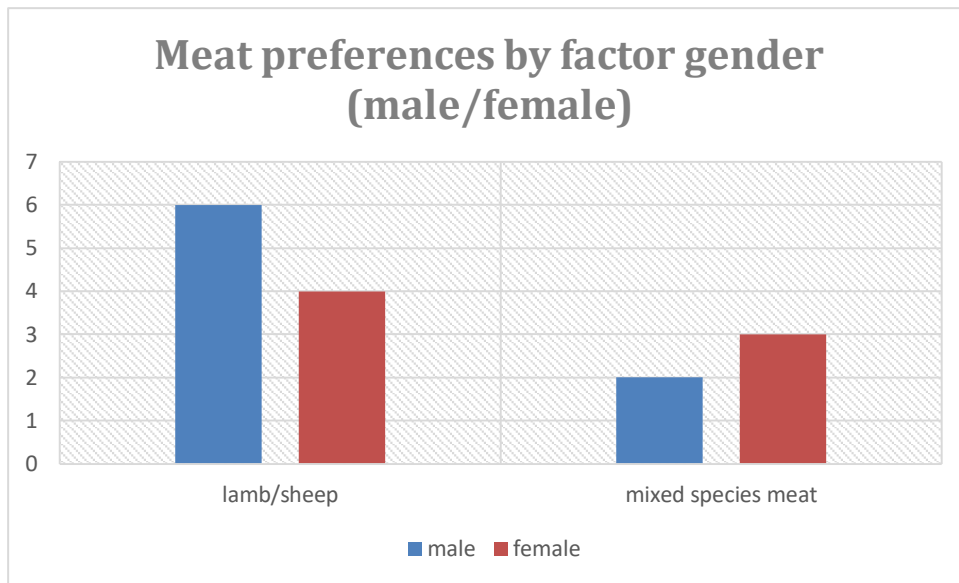


Figure 11. Meat preference by factor gender (male/female).

During the interview, got interesting answers from respondents which will make more valuable research work that shows below interesting narrative;

“It is from tradition point we like a lamb at home, as we are not sure about the availability of halal outside, we prefer outside fish only”.

“Outside we mostly prefer to eat burgers etc. because if we go to Asian restaurant, then we have doubts on their hygiene and quality while on another hand if we go to Norwegian restaurants, we are doubtful about halal items. We prefer male and young animals because I think their meat is more delicious than other older guys”.

Norwegian Muslims prefer to lamb/sheep meat cooking at home instead of outside due to hygiene and halal issues which are highly influenced by a religious and cultural factor. This finding result clear tell us, Muslim wherever they are living, but they follow their dietary rules under Islamic laws. They have strong faith and belief due to their religion and Islamic culture.

Meat quality vs. gender

From the research sample survey, 13.33% (2/15) male respondents prefer to buy fresh meat, 13.33% (2/15) male respondents purchase frozen meat, 26.67% (4/15) male prefer quality regarding purchasing meat. Female respondents 26.67% (4/15) look freshness while buying meat, 13.33% (2/15) prefer to frozen, and 6.67% (1/15) prefer the quality attributes. It showed

that consumer purchasing intentions behaviour are affected by the individual choices/preferences regarding meat attributes fresh, frozen, and quality.

Meat preferences changing regarding attributes fresh, frozen, and quality. The meat consumer narrated as:

“I prefer fresh meat due to the best quality and later good taste”.

“I prefer to buy frozen products then I am sure for the good hygiene and less contamination”.

“I will prefer cleanliness, more variety of cuts, good fat: meat ratio, parts of meat. I will prefer fresh but frozen is also fine”.

The respondents view changed by the consumer to consumer, of course all of these Muslim consumers would like to prefer a better quality of meat, but in terms of freshness and frozen attributes, consumer behaviour varies their knowledge and perception. However, those consumers who have awareness and knowledge about nutritional value. They always prefer to fresh meat instead of frozen due to better taste, flavour and rich nutrition.

It is parallel to the findings of research conducted by (Risvik et al., 1994; Acebron & Dipico, 2000; Grunert, 2006; Hanekom, 2010) that showed consumer evaluate meat quality by colour, and fat and confirmed after consuming the meat product by tenderness, juiciness, taste, and flavour. The colour of fresh meat that affects consumer purchase behaviour and acceptance due to the bright red colour of meat which indicates the freshness of meat for attracting the consumers. Consumption of fresh meat products is influenced by meat prices and per capita income (Hanekom, 2010).

Ready to eat (RTE) meat dishes preferences vs gender

The study results showed that ready to eat Norwegian halal meat dishes were “liked” by 40% (6/15) male respondents, and two respondents 13.33% (2/15) said, “Disliked”. Female respondents 13.33% (2/15) said “liked”, and majority 33.33% (5/15) was “disliked”. The data indicate that male consumers prefer RTE halal dishes, but the majority of female consumers did not prefer RTE dishes due to religious belief and cultural influence because of the doubtful regarding halal factor and quality. Therefore female consumer does not give importance such kind of RTE meat products in the market.

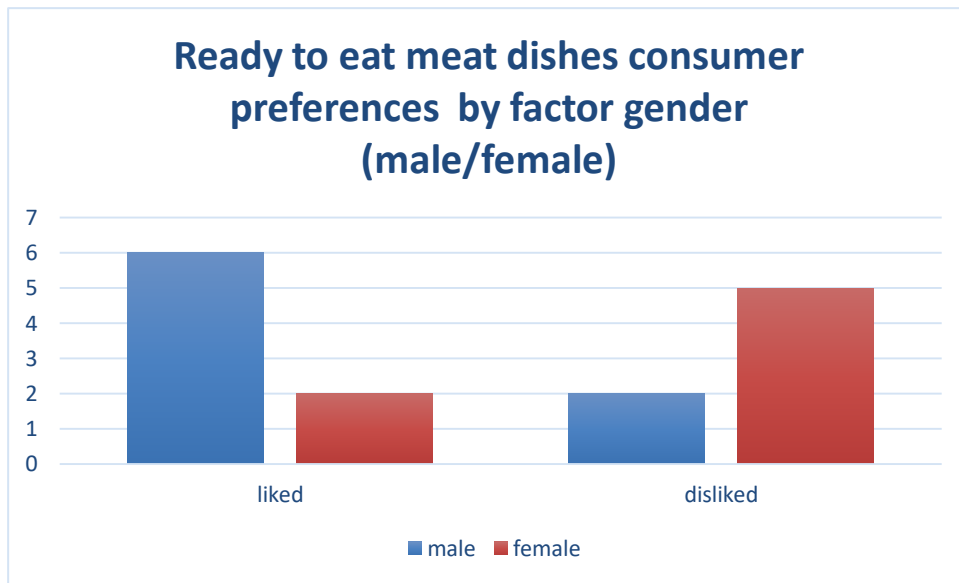


Figure 12. Ready to eat meat dishes consumer preferences by factor gender (male/female).

Respondents were unaware about RTE dishes term so; they shared various valuable views below;

“Do not know much about due to availability and do not like due to quality concerns”.

“Halal Ready to eat dishes are not available, if halal RTED is more available I will at least try them”.

“If available, should be of great quality and taste”.

“If they are available in the halal market, I will surely try it”.

“When meals are frozen, then all the nutritive value is finished, and taste varies. Therefore I am more concerned about freshness and taste of ready to eat dishes”.

The respondent’s views tell us that the majority of consumers did not know the availability of RTE halal dishes in the market. Neon of consumers said they prefer to try at least once for analysing quality and taste attributes. Because Muslim consumer does not compromise especially on the halal attribute. Therefore, it is essential to satisfy and retained trust for the Muslim consumer with a sign of Halal identity (Bonne, & Verbeke, 2008; Mohayidin & Kamaruizaman, 2014) before introducing RTE halal dishes in the Norwegian market.

The survey result of male respondents regarding RTE meat dishes related to the conducted research by (Montossi et al., 2013) that showed Muslim consumer prefers to purchase halal meat from supermarkets due to ready-meals in Amsterdam (Netherlands). However, the majority of consumers are doubtful regarding quality and halal issues. Therefore, they did not get more priority of RTE dishes. However, some of them said, they will try at least once to RTE dishes if available in the food market. The respondents answered they reveal their faith, belief, a cultural, and religious determination that are influenced by food choices.

Animal sex preference vs. consumer education

In a sample survey, Master level respondents 26.67% (4/15) prefer male sheep, Bachelor level respondents 13.33% (2/15) liked to male sheep but mostly respondents 33.33% (5/15) in this category said “does not matter” gender of the animal. The respondents of High school 6.67% (1/15) prefer to male sheep, 6.67% (1/15) female sheep, and two respondents said: “does not matter”. The result reveals that master level consumer consumed only male sheep, but the bachelor and high school level consumer did not give more importance to meat regarding male and female sheep. This means that a high level of education consumers only prefer to eat male sheep meat due to better taste, nutrition value, and flavour.

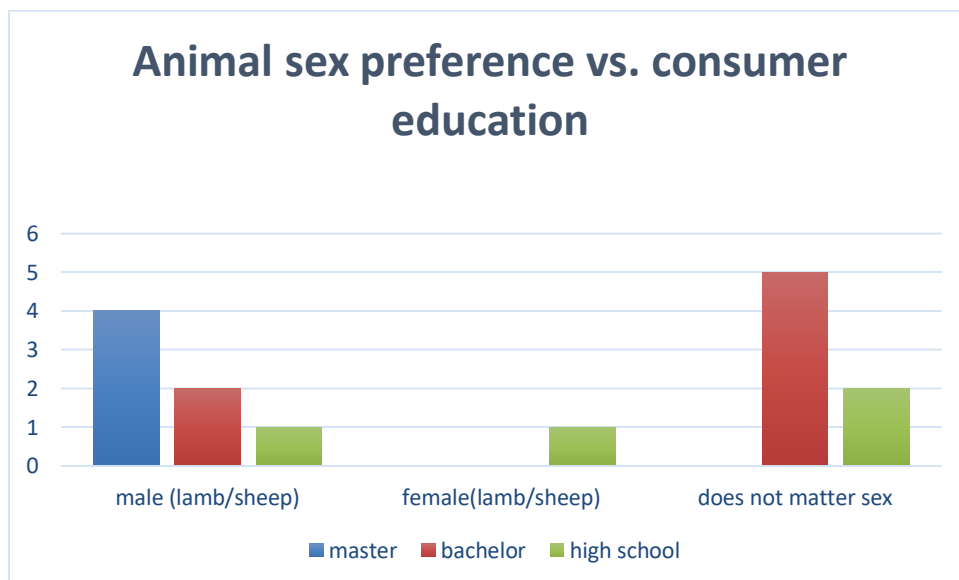


Figure 13. Animal sex preference vs. consumer education.

It is parallel to the findings of a conducted research study of Grossman & Kaestner (1997) that indicated a positive relationship between education and health because better education enhances the understanding of consumers regarding nutrition information during purchasing

meat and meat products in the market (Danijela et al., 2011). However, identifies meat-eating consumer habits can be improved the marketing strategies by educating the consumers (Grimshaw, 2013).

Effect of consumer gender on willingness to pay more for meat cuts

We found that in sample data result, male respondents 53.33% (8/15) were “true” willingness to pay more price for special meat cuts and respondents of female 46.67% (7/15) were “true” willingness to pay extra prices for individual lamb meat cuts. The result shows that consumer prefers quality, own satisfaction, and taste instead of meat prices factor. All of the respondents are willing to pay higher meat prices to buy special meat cuts in the market.

Respondents were ready to pay an extra price for a special portion of lamb/sheep animals. Some of the views of interviewees concerning the purchase of special meat portions are presented below:

“Lamb lower, Chops, We mostly buy a complete lamb lower and then ask the butcher to cut into small pieces”.

“Lambs leg and lower portion”.

The survey results findings are parallel to the research of (Hanekom, 2010; Troy & Kerry, 2010; Montossi et al., 2013) that showed fresh meat colour plays an important role in attracting the consumer in the market and 60% consumers willing to pay 10% extra for the high-quality meat products. Moreover, the price factor plays an important role in consumer purchasing decision. Higher prices of the products indicate better quality and safety of the meat for the consumers. Consumers preferred to buy safety lamb meat through reliable certification, place of purchase, and labelling. (Montossi et al., 2013). Although consumer attitude and perception of meat quality to ensure consumer satisfaction that increases consumers’ willingness to pay while purchasing meat products.

4.3 Consumer preferences for the halal logo and other meat information

Consumer age effect on “halal logo.”

In sample study respondent's age were between 27 to 70 years, we made preferences scale from 1 to 4. 73.33% (11/15) respondents preferred "1st" halal logo, 13.33% (2/15) preferred "2nd", 6.67% (1/15) preferred halal logo "3rd" preference, 6.67% (1/15) preferred "4th" halal logo. The survey results showed that 73.33% consumer gave first preference to the halal logo while purchasing meat products in the market which indicated Muslim consumers are very conscious regarding halal meat to follow their dietary rules and regulation under Islamic laws.

Effect of consumer education on halal logo preference

From the sample, we made preferences scale from 1 to 4. Master level respondents 6.67% (1/15) preferred "1st", 6.67% (1/15) 2nd", 6.67% (1/15) "3rd", 6.67% (1/15) "4th" preferences to halal logo, bachelor level respondents 46.67% (7/15) preferred "1st" preference halal logo, 20% (3/15) high school level halal logo preference "1", 6.67% (1/15) preference"2nd". The result data showed master level respondents preferred to halal meat but did not give importance of a halal logo, however, bachelor and high school level respondents gave first preference to the halal logo while purchasing meat due to their religious belief, trust, and culture aspects.

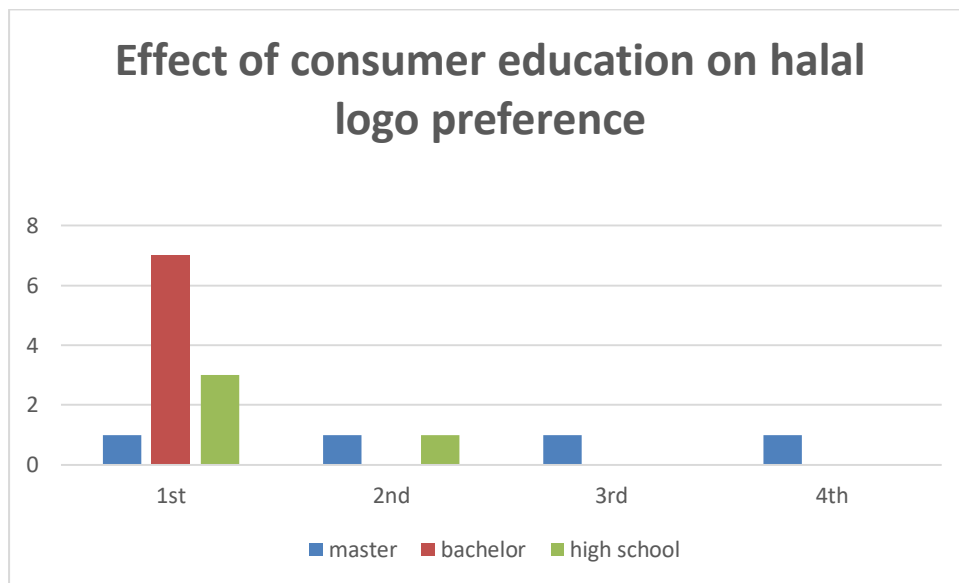


Figure 14. Effect of consumer education on halal logo preference.

Effect of consumer gender on halal logo preference

The sample survey study indicates that male respondents 40% (6/15) were the first choices of Halal logo, 6.67% (1/15) 3rd and 6.67% (1/15) fourth preference of halal logo. On the other

side female respondents, 33.33% (5/15) said “1st” preference halal logo but only 13.33% (2/15) were second choices of a halal logo. The result data showed that majority of Muslim consumers prefer to “halal logo” first choices while purchasing meat products due to quality, religious affiliation, trust, the inclination to halal foods without a specific reason, and mentioned all information about traceability and authenticity.

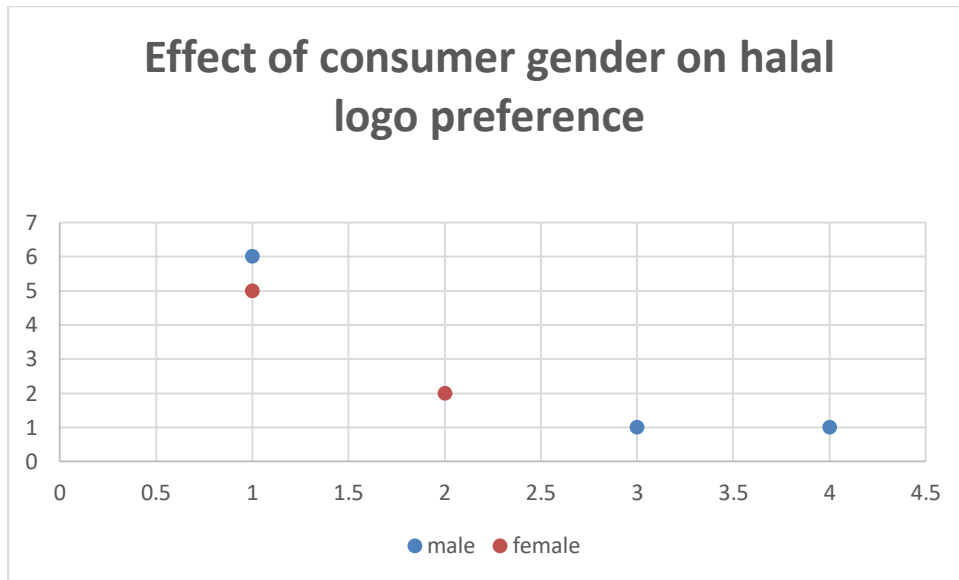


Figure 15. Effect of consumer gender on halal logo preference.

The respondents prefer to visible Halal logo with entire information to consume meat without any doubt to contamination non-halal ingredients. Some respondent’s impressive views below:

“I wish to get more information in the form of logos and product will be traceable”.

“I prefer halal certify logo more so that I get assured that I am consuming halal meat”.

“I prefer halal logo for getting more satisfaction and trust on the product because I am Muslim”.

“When buying from a supermarket, logo and all other information is very important”.

“Mostly I buy from a shop of a known person, but if I am buying from the Norwegian grocery shop, then I need to see logos”.

The results indicated that Muslim consumer prefers a halal logo to verify the origin and breed the animal meat product, and slaughter method under Islamic laws. The visible logo on meat will impact positively to enhance the demand of halal meat in Norway among Muslim community as well in the supermarket because a majority of Muslim consumers trust regarding meat products on local butcher as a compared supermarket. The visible halal logo on meat products in the supermarket will increase the demand for meat and also provide the Muslim facility consumer to buy halal meat from the supermarket that makes stronger Norwegian lamb meat chain. This finding is parallel to the conducted research by (Ali et al., 2012; Salman & Siddiqui, 2012; Sherwani et al., 2018).

The survey results are parallel to the findings of conducted research by (Essoo & Dibb, 2004; Kotler, 2004; Kotler 2006; Mokhlis, 2006; Noland, 2007; Budiman, 2012; Awan et al., 2015; Yener , 2015; Liebenberg, 2016; Farouk, & Fathima, 2017) that showed religious belief influences depending on consumer attitude or perception behaviour regarding food choices in different circumstances. However, consumer preferences affected by culture and religion factors due to the individual consumer faith and beliefs that impact on the food market. Also, religious belief is a commitment which covers consumer whole life pattern including consumption behaviour, consumer choice behaviour, and purchase intention. Belief is a personal thought of individual consumers to holds something regarding culture and religion attributes. A study revealed that whatever a person's religion but the religious belief and faith affect consumer behaviour. Although Muslim consumer highly influenced by a religious obligation in purchasing halal meat products.

Consumer behaviour varies from time to time or product to product in the decision-making process including influencer, initiator, buyer, decider, and user (Kotler, 2009; Marketingteacher, 2014). However, consumer behaviour is essential to fulfil the expectation of consumers in terms of purchasing decisions (Font-i-Furnols, & Guerrero, 2014) such as meat products (Becker, Benner, & Glitsch, 2000). Also, the food choices depend on individual consumer perception regarding nutritional value, food prices, quality, safety, a social, economic, religious, and cultural influence factors which help to the consumer made a decision (Xazela et al., 2017).

The survey results are parallel to the conducted research by (Bonne & verbeke, 2008; Verbeke et al., 2013; Mohayidin & Kamaruizaman, 2014; Cottle & Cowie, 2016; Meixner et al., 2018) that showed Muslim consumer's satisfaction is most vital element towards halal certification

and labelling. The majority of Muslim consumer's preferences to buy halal certified label food products, even they willing to pay higher prices. This thing shows that halal label certification is more important than food product prices for Muslim consumer's intention in purchasing decision. The halal product is not evaluated by individual consumers. It depends on certified authority that verifies/examines the status of halal food according to Islam.

The halal label refers verification of food preparation processes including cleaning, hygienic manner, handling, and slaughtering, storing, disinfecting, ingredients used, transportation, and distribution under Islamic laws (Yousoff, 2004; Baizuri et al., 2012). In addition, reduces uncertainties, increases trust and guarantee for Muslim consumers regarding produced food according to the Islamic sharia (Zulfakar, 2015). According to Ahmed (2008) study revealed that Muslim consumers are most conscious to select halal meat instead of price. Therefore, Muslim consumers are willing to higher prices for certified halal meat in the market (Verbeke et al., 2013).

According to a research study of Kotler (1999) that indicated consumer behaviour characteristics comprises the mental, emotional, and physical activity of the consumers while purchasing decision, selecting, using of products and services to meet the consumer expectation. Also, consumer study helps to understand human behaviour regarding psychological, sociological, and economic factors (Mowen, 1987, 1988; Atautis et al., 2014). However, food needs and choices represent to human being life, culture, society and tradition (Classen, 2007).

Preference of meat origin by consumer gender

In this sample, 53.33% (8/15) male respondents preferred to lamb/sheep meat Norwegian based of origin, 33.33% (5/15) female respondents were eating lamb meat Norwegian based of origin but only two female respondents 13.33% (2/15) said "do not know" about this attributes of meat. The result shows that 86.66% consumer preferred to Norwegian lamb/sheep meat due to taste, quality, easy accessibility and traceability, trust, nutritious, fresh, and very strictly food quality control by food authority laws. Two respondents said they tried Swedish meat but Norwegian meat tastier, healthier, less fat content, and fresh due to the better farming system. This result is parallel to the findings of conducted research by (Han & Terpstra, 1988; Boliger & Reviron, 2008; Magdelaine et al., 2008; Vukasovic, 2009).

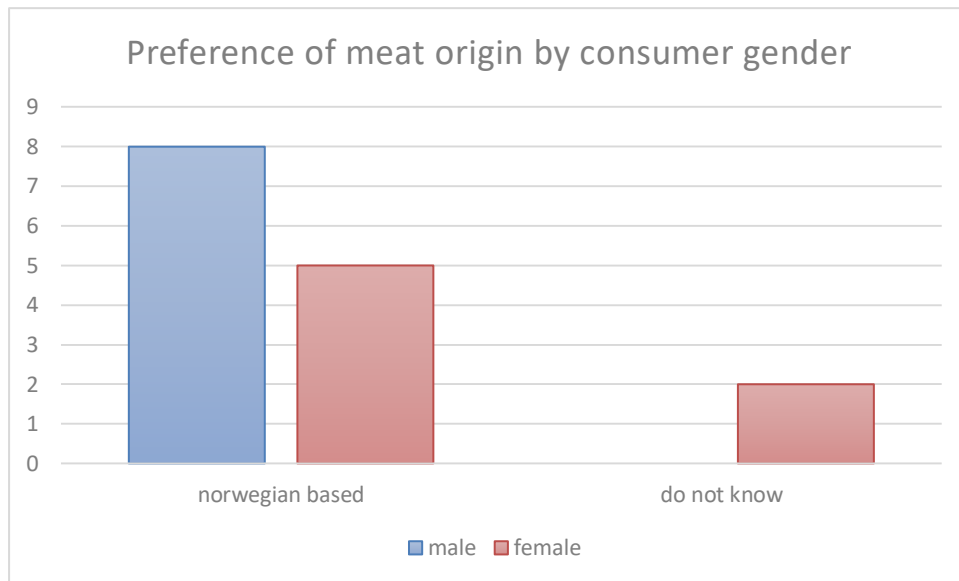


Figure 16. Preference of meat origin by consumer gender.

Respondent's most reliable on the Norwegian meat production instead of another country of meat. Some of the interviewee's responses are given below:

"Good taste, better farming system, everything is controlled and monitored routinely".

"Quality of meat here is good as compared to other countries like Sweden".

"Taste of Norwegian origin meat is best, once we purchased meat from Sweden but we do not like the taste".

"I try Swedish meat but Norwegian meat same tastier. Maybe it is because Norwegian meat is fresher".

"Very important and we prefer Norwegian origin due to more trust".

While interviewing views of one respondent said:

"I prefer to buy Norwegian product and as much as organic and of course halal".

The survey results related to the conducted research of (Boliger & Reviron, 2008; Magdelaine et al., 2008; Meixner et al., 2018) that showed the origin of food plays a vital role in increasing

attention in the world market especially in Norway which affects the consumers purchasing decision. Moreover, the country of origin is a vital factor associated with various certified food products which have higher degree credibility in terms of consumer satisfaction.

However, the majority of meat consumers prefer local and national sheep meat due to fresher, tastier and better quality (Chambers et al., 2007). Although European consumers prefer to buy local lamb meat than meat from lambs other countries (Furnols et al., 2006).

Place of meat purchase by consumer gender

The conducted sample data, male respondents 40% (6/15) bought meat from “local butcher” and 13.33% (2/15) preferred to buy “middle man”, 33.33% (5/15) female respondents preferred to buy meat from “local butcher”, 6.67% (1/15) female buy from “middle man”, and 6.67% (1/15) female respondent was choices to buy meat at supermarket. The result shows that 73.33 % consumer prefer to buy meat from local butcher due to trust, well-known shopkeeper, and halal factor. Three respondents bought from a middle man and only one consumer prefer to buy meat from the supermarket. However, Muslim consumer belief and trust in the local butcher, well-known person, and middle man rather than a supermarket chain.

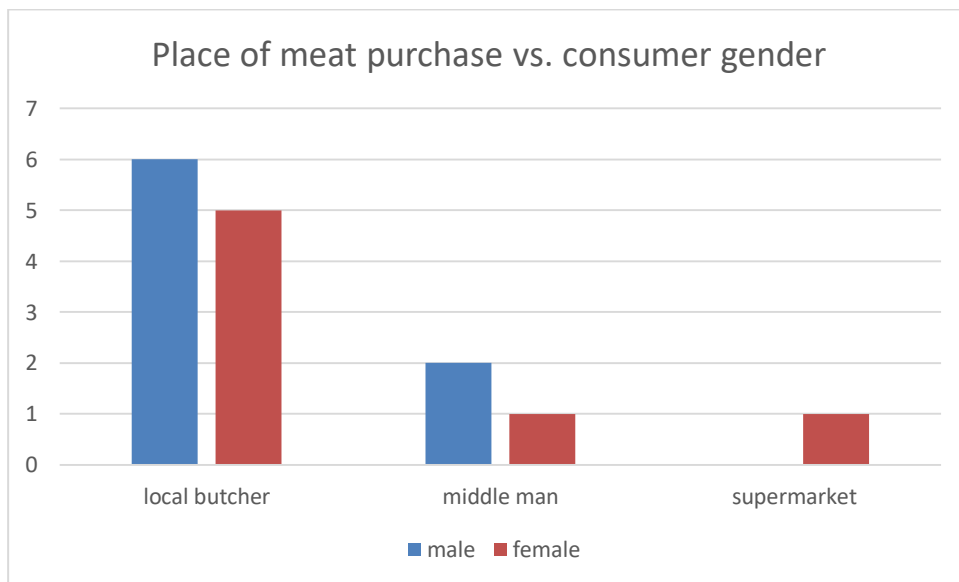


Figure 17. Place of meat purchase vs. consumer gender.

Majority of the respondents prefer to buy meat from local butcher due to trust. Some respondents are presented various views below:

“Because it is from a trusted producer and we believe that there is exist a good quality control protocol in Norway.”

“I prefer Norwegian meat, but I never see any difference, because I buy from a local butcher and he never mentioned about it.”

“Butchers tell us the origin of meat”.

“I know local meat suppliers and I trust on them, they also provide meat for my restaurant”.

“It is only the matter of trust, and other Muslim community members also buy from there”.

“I do not know about logos because mostly I am buying from a local butcher. If I need to buy packed meat, then I will surely see the halal logo”.

“We prefer halal logo when purchasing meat in packets; if purchasing from a local butcher then we do not ask or see the logo”.

“I mostly buy from a Pakistani shop so always trust on the person and never ask for logo etc.”

The respondents view shows that the majority of Muslim consumers are used to buy meat from local Muslim butcher due to trust. Whenever, they try to buy meat other shops such as supermarket, definitely checked visible information about the halal-certified logo.

The survey results are parallel to the findings of Ahmed (2008) study survey among 300 Muslim consumers to find out purchasing behaviour in British supermarkets and local halal butchers. He found that many market chain misuse of halal labelling in supermarkets for Muslim consumers. Therefore, the majority of Muslim consumers did not trust in the supermarket when purchasing halal meat and preferred to buy local meat shop run by Muslim sellers (Ahmed, 2008). Furthermore, another study survey showed consumer behaviour regarding purchasing halal meat from local butcher shops versus supermarkets. The result found that Muslim consumer will intention to buy halal meat when they rely on shopkeepers

selling good halal meat by the certified halal logo and halal certification label on the meat (Farouk, & Fathima, 2017).

Muslim consumers rely on the Muslim sellers/local butcher and put their trust in the seller's information source that the product will be halal otherwise, the authenticity of halal depends on the assurance of product of label itself (Sherwani et al., 2018).

Moreover, Muslim consumer prefers to purchase halal meat in Islamic owner butchers due to the trust, confident and religious identity (Montossi et al., 2013). For instance in the UK, where the majority of the Muslim consumer trust on the local butcher to buy halal meat as compared supermarket certified authenticity of halal meat. None of the Muslim consumers prefers to check the certification of halal meat even their local butcher shop, but the majority of Muslim consumers are more conscious to check the halal certification of meat when they went supermarket even the presence of Muslim staff (Zulfakar, 2015).

Meanwhile, Muslim consumers rely on trustworthy sellers supply chain due to the integrity of halal food (Mohamad & Hassan, 2011). However, Muslim consumer believes and trust in halal meat regarding quality, safety, and health perspectives. Moreover, Muslim consumer prefers to purchase halal meat in Islamic owner butchers due to the trust, confident and religious identity (Montossi et al., 2013).

Preference for meat from specific feeding regime

From the sample data, less than 30 years old respondent 6.67% (1/15) preferred to "specific feed" of ruminant animals, respondents between age 30-50 years old 60% (9/15) were preferred "specific feed" and 26.67% (4/15) said "does not matter" ruminants feed, respondents more than 50 years old 6.67% (1/15) also said "does not matter" animal feeding system. The results data indicated that 66.67% respondents irrespective gender were influenced by specific animal feeding system due to better quality and taste of meat and 33.33% did not preference animal feeding system due to lack of knowledge about this attribute.

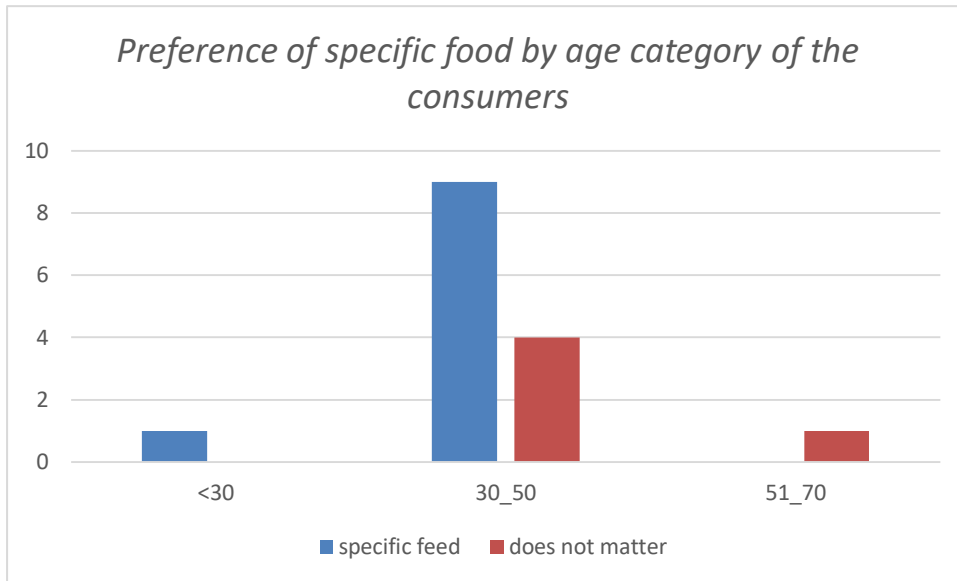


Figure 18. Preference of specific food by age category of the consumers.

From the sample data, Master level respondents 26.67% (4/15) preferred “naturally” feeding system, 26.67%(4/15) bachelor respondents preferred meat” naturally” animal feeding but 20% (3/15) said “does not matter” animal feeding system, high school level respondents 20% (3/15) said to prefer to naturally feed of animal and 6.67% (1/15) said” does not matter”. The results showed 73.33% educated consumers to prefer to the meat of animal naturally feeding based due to better taste, flavour, and quality as compared to intensive feeding system.

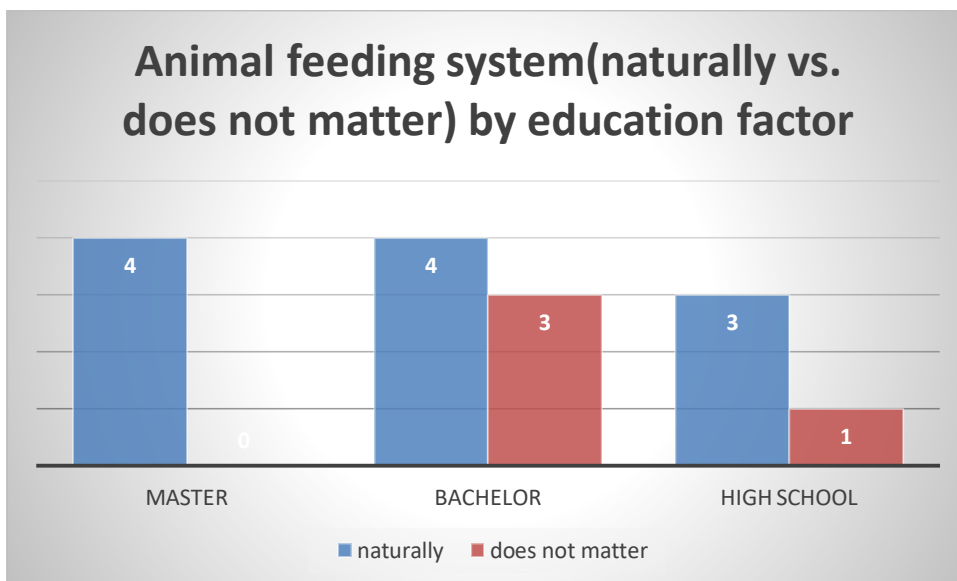


Figure 19. Animal feeding system (naturally vs. does not matter) by education factor.

It is parallel to the study survey results of (Rousset-Atkin et al., 1997; Hanekom, 2010) that revealed consumer preferences to eat lamb meat products depend on flavour and aroma intensity. Because consumer preferred ruminant's animals feed intake while growing such as pastures green land. The pasture feed of sheep is directly correlated with a different flavour as compared with the concentrate fed sheep.

However, the consumer prefers to eat meat produced from the natural extensive production systems as compared intensive production systems. (Hanekom, 2010). Although consumers prefer to eat lamb meat from the grass-based production system as compared with lamb concentrate-fed. Also, consumer beliefs and expectations on the grass production system produce more natural, healthier, and tastier meat than more intensive grain feeding system (Furnols et al., 2011). Also, the extensive production systems influence positively on consumer's meat preferences due to pastures/feed intake in the natural environment (Hughes, 1995).

These days consumer prefers to meat quality in terms of environment-friendly, promote sustainability, and comply with animal welfare attributes (Hanekom, 2010). Although consumer prefers to buy meat products on high prices which are certified and adhere to animal welfare guidelines including rearing, transporting, and slaughtering conditions (Hanekom, 2010).

According to the study survey Berg (2002), consumer believes Norwegian sheep farming is the most organic and welfare friendly production system including entire animal production within Norway (Berg, 2002). However, European citizens think that animal welfare and protection is better in Europe instead of other parts of the world but the majority of European (52%) buy food without evaluating animal welfare issue this is related to survey results (Montossi et al., 2013).

Consumer perception differs about animal welfare from gender to gender due to education level, occupation, age, and country origin. However, well-educated and high-income level consumers are very conscious of animal welfare (Grunert & Valli, 2001).

Meat consumption vs. consumer education

In the sample data, master level respondents 20% (3/15) were consumed (0.5-1) kg and one respondent 6.67% (1/15) consumed (1-2) kg. Bachelor level respondents 6.67% (1/15) were

consumed (<0.5) kg and 33.33% (5/15) consumed (0.5-1) kg, and 6.67% (1/15) consumed (1-2) kg. High school level respondents 20% (3/15) were consumed (0.5-1) kg, and one respondent 6.67% (1/15) consumed (1-2) kg. The results revealed that 73.33% of educated consumer mostly consumed a moderate level (0.5-1) kg per meal.

Cooking meat preferences at home by factor gender:

The result showed that a significant relationship between two variables, cooking meat preferences home based influenced by gender ($X^2=4.91$, $P=0.026632$, $DF=1$, Table 2). We can see that cooking meat preferences at home based very common among male and female respondents every week as compared monthly. This factor indicates that the majority of the population prefer to cooking at home instead of buying outside, might be less trust in the halal meat, quality, and hygienic issues.

Table.2: Cooking meat preferences at home regarding times (weekly and monthly) by factor gender (male and female consumer). ($p= 0.05$)

Gender	weakly/times	monthly/times	Sum
Male	8	5	13
Female	10	0	10
Sum	18	5	23

Frequency of eating lamb/sheep meat at home by factor gender

The result showed that a significant relationship between two variables, eating lamb meat preferences at home based was influenced by male and female consumer ($X^2=4.93$, $P=0.026445$, $DF=1$, Table 3), which means Muslim consumer happy to eat lamb/sheep meat by cooking at home. This result showed that Muslim consumer influenced by religious and culture attributes therefore, always prefer to eat lamb meat especially in homemade due to quality, halal, and hygiene issues so we are able to say that this result might be related to the conducted research by Ahmad (2008) UK study that showed 5 percent Muslim British of total population are consumed 20 percent lamb meat in the UK.

Table.3: Frequency of eating sheep/lamb meat at home by factor gender, a matrix with number of respondents per category

Gender	Weekly	Monthly	Sum
Male	5	25	30
Female	6	6	12
Sum	11	31	42

4.4 Meat consumption patterns

Consumer meat consumption in kg by the age factor.

The result showed that a significant relationship between two variables, consumer meat consumption influenced by consumer age ($X^2=15.475$, $P=0.03792$, $DF=6$, Table 4). The result showed that moderate age consumer consumes more meat as compared below than 30 and older than 46 years older. The result is related to the conducted survey by (Malindi, 2010) that showed over 50 years older less depend on meat products.

Table.4: Meat consumption in kg (per week) by the age factor, a matrix with number of respondents per category

kg/week	Age (years) category of the consumer				Sum
	<30	30-45	46-60	>61	
< 0.5 kg	1				1
0.5 – 1 kg		7	2	1	10
1 – 2 kg		3	1		4
Sum	1	10	3	1	15

Table 5: Consumer answers to different specific statements regarding meat consumption, coloured=agree to the given statement (where related to gender: blue=men, red=women), white= disagree to the statement.

I prefer to eat only halal meat (80%) (irrespective of gender)	
I can eat non-halal meat, if halal is not available (20%) (irrespective of gender)	
I prefer to eat lamb meat over other meat types	
I eat meat (lamb) once a week	
I eat meat (lamb) twice a week	
I prefer meat from male sheep/lamb (irrespective of gender)	
I prefer meat produced in Norway (irrespective of gender)	
I prefer to buy from local butcher	
I prefer meat from grass-fed animal (irrespective of gender)	

5. Imam interviews: results and discussion

5.1 The first Imam

The personal communication with 1st Imam of Mosque at Grønland, Oslo was conducted on 10th February 2019 with the main focus on the topic of Muslim Meat Festival (MMF, also called Eid al-Adha). The qualitative information was collected with the main focus on MMF with following main themes: the main aim of MMF history, and background of MMF, religious obligations, selection of sacrificial animal, meat distribution at MMF and overall halal nature of the slaughtering.

“Qurbani festival called by two names: Eid-al-Adha or Greater Eid. Muslim Uma always follows the rules and regulations to celebrate Eid under Islamic laws. Word “Eid” only used for two Muslim festivals a year. We do not use this word another celebration or events. Qurbani celebration is an emotion/devotion which reminder us Prophet Ibrahim (AS) obedience to GOD regarding sacrifice his son to fulfil the commanded of ALLAH. GOD do not need your animal meat and blood. HE wants to check your faith, piety, and belief. Qurbani is not the tradition for the slaughter of animals. It gives a lesson to Muslim, ready always to sacrifice everything for the name of ALLAH. According to the Holy book of Quran, not reach your meat and blood to ME, only check your piety (Taqwa). Hajj is a compulsory component of Islam. There is some age restriction for Qurbani animals. Lamb/sheep minimum age six months, goat one year, cow two years, and camel five years age limit for slaughtering at Qurbani festival. There are no compulsory rules to distribute Qurbani animals meat but usually, divided into three parts: one to keep hold at home, one for relatives and friends, and one for poor’s. Qurbani animal’s whole meat would keep hold at home if they needed. More than need can give to relatives, friends, and Poor’s. You can safe meat by frozen and use as long as you can. If the neighbor's people are hungry, so must be distributed this meat among them, otherwise qurbani not be accepted. Although Qurbani is not allowed in Europe, therefore Muslim adopt two ways to contribute in the religious festival: the first one gives money those people who are going for the pilgrimage (Hajj) and second one all Muslim immigrants send money their relatives for Qurbani at homeland”.

He discussed the significance of religious MMF festivals in Islam and the celebration way. Quarbani is Sunnah of Prophet Ibrahim (AS) that shows/reminds to Muslim each year on 10th Dull-hajj. Muslim always ready to sacrifice everything in the way of GOD to show HIM piety. Usually, Quarbani animal meat divided into three portions; 1/3 family, 1/3 friends/neighbours/relatives, and 1/3 in poor's. Qurbani gives us a lesson to help the poor's and needy person. Qurbani festival is compulsory for everyone who can afford to sacrifice lamb/sheep for God. ALLAH check to your piety/Taqwa because of He does not need any animal meat and blood. However, there is no specific restriction to distribute sacrificial animal's meat to others. It depends on those who sacrifice animal wants to share with others or entire meat keep hold at home. Although Sacrifice animals are not allowed in Norway on MMF. Therefore, Muslim immigrants adopt alternative ways to contribute to Islamic events/rituals. They send money their homelands to buy animals and those Muslims who are going to Hajj in Saudi Arabia.

Furthermore, if this event will occur in Norway in existing slaughterhouse under Islamic laws which called by name Halal, so it will create new meat market opportunity, especially for sheep farmers those who earn very few money (>12 months) that fragile meat producer economy because Muslim prefers to sacrifice lamb/sheep animals one years or more than one year old on MMF. It is the best opportunity to make profitable/sustainable sheep farming in Norway which is facing many challenges due to less pay money one-year-old sheep by meat industry buyer. This MMF could be made a new meat market niche and contribute to the Norwegian economy.

5.2 The second Imam

The personal communication with the second Imam represents the Muslims from Afghanistan and is responsible for one of the main mosque in Oslo was conducted focused on the information regarding MMF. He explained about "Eid-al-Adha" topic almost one and half hours and shared me very interesting information about this religious festival including some typical Islamic legalisation and rules, and points which I did not know as a Muslim before.

"The concept of Qurbani existed in various groups, cultures, and religions before Islam. We do Qurbani animals only for ALLAH to obey HIM. That means Muslim ready to sacrifice everything in the way of GOD. Quarbani word comes from "quarb" means nearest (near to God). Also, Qurbani concept was in the era of Prophet Adam (AS)

before Christianity and Jews, but the method of sacrifice was different. Prophet Ibrahim (AS) was born in the non-Muslim family but decided to leave home, and religion converted into Islam. Quarbani is a process offered by Muslims for ALLAH obedience on a specific day and month. Taqwa is an important factor regarding sacrifice animal (sheep/lamb, goat, cow, camel) in the way of God. ALLAH do not need your animal blood and meat. GOD wants to check how much obey HIS order. However, Muslim feel happy and proud to sacrifice everything for ALLAH. Muslim reminder Sunnah of Prophet Ibrahim (AS) sacrifice lamb each year on Eid-al-Adha festival. In Islam, Quarbani is compulsory for those who can afford to buy sheep and lamb animals.”

“Formally there is no restriction to distribute Quarbani animal meat into three parts regarding Islamic laws. However, usually Muslim divide meat into three parts; one keeps hold at home, second is for relatives and friends, and finally is for needy and Poor's. Also, it is allowed Quarbani meat to give non-Muslim. Quarbani animal meat and wool give as charity but not charge price. Quarbani animals such as goat and lamb looking healthy, it is allowed for sacrifice but usually, 12 months however its depending animal to an animal such as cow minimum age restriction two years. Quarbani animal should be healthy, sick, blind, and disabled animals are not allowed under Islamic laws.”

“Eid-al-Adha festival promotes to sheep farming system and positive effect on every country economy. It can generate profit and job opportunity for rural areas in sheep farming. He shared with my example of Pakistan, his servant who buy three lamb/sheep each year before four months of MMF and sell 8 to 10 time's high prices at Eid-al-Adha festival due to high demand for Muslim consumer for Quarbani festival. If Muslim sacrifice 10000 sheep at Eid-al-Adha festival at Norwegian slaughterhouse under Islamic laws in Norway, this step creates an opportunity for Norwegian sheep farmers to sell their sheep/lamb at a better price. This factor positively impacts on the Norwegian economy and make more sustainable sheep farming especially a do profitable business for Norwegian sheep farmers”.

He discussed that Quarbani existed in other religions before Islam, but sacrifice way was different. This process will bring us to near ALLAH and teach us to sacrifice everything for GOD. We Sacrifice animals such as lamb/sheep each year on a specific date and month. God

do not need our animal blood and meat. HE checks piety of our faith and belief. Quarbani is compulsory for those who can afford. There is no Islamic restriction to distribute animal meat, but people divide into three parts; 1/3 family, 1/3 friends/relatives, and 1/3 poor. Islam allows us sacrificial animal meat to give non-Muslim and also not allowed to charge any price for wool and meat as well. However, Quarbani animal distribute in categories by minimum age restriction that must be met like as sheep/lamb/goat one year, cow two years, and camel five years. Quarbani animal should be healthy and beautiful because sick animals are not acceptable.

Furthermore, MMF positive impact on every country economy and sheep farming system. Because MMF creates an opportunity for jobs in this sector and provides better prices of each sheep (>12 months) to farmers that lead to making a more sustainable and profitable sector in agriculture, he told that his servant every year buy 3 to 4 sheep a few months ago and sell ten times higher price on MMF due to the high demand for sheep in Pakistan. This thing shows that if the MMF will occur in Norway in existing slaughterhouse under Islamic laws that could be overcome least price of sheep (12 months) and will make prosperous to sheep farmers livelihoods. It will promote to Norwegian sheep farming business as in profitable, sustainable manner, and contribute in the Norwegian economy.

5.3 The third Imam

The 3rd female imam scholar represents to Islamic Female Institute at Furuset, Oslo. The first time we got the opportunity to discuss MMF with her. She explained each aspect of “Eid-al-Adha” in different perspectives and had a strong grip on each point regarding religious festivals according to Islam. We asked her various questions about MMF regarding meat distribution and storage time. She responded to us very well and had great interviewed experience with her.

“Quarbani is not a new thing such kind of rituals were also before Islam. Quarbani word comes from “quarab” mean nearest. We can say that Quarbani is devotion which motivated to Muslim to sacrifice everything in the way of God for getting quarab of ALLAH. Quarbani is the whole process of getting quarab of ALLAH under the Sunnah of Prophet (PBUH). Quarbani rituals offered after pilgrimage (Hajj) or Eid-al-Adha prayer, its celebrated 10th Dull-hajj whether in the haram territory or all around the world. Quarbani is Sunnah of Prophet Ibrahim (AS). Indeed, it is processed to near to

ALLAH. Quarbani is checked to the Taqwa/piety of Muslim that how much they obey a command of ALLAH”.

“GOD did not directly order to Ibrahim (AS) to sacrifice his son (only seen in the dream). He had a strong belief on GOD, and ready to sacrifice his son to obey the commanded of ALLAH. Quarbani word in the holy book of QURAN in surah Toba verses 99. The word “quarban” comes in the holy book Quran in thrice times. Surah Madha verses 27 (anybody does not know which quarbani accepted or not accepted by GOD). Also, mentioned in Surah Al-Imran verses 183 and Surah Al-kaf verses 128. The quarabni alternative word “hadi” comes from Hadyia , those animals who slaughtered in Mana or Haram”.

“GOD create us and send us on earth for examination. In Surah Mulik verses 2 and Surah dattar verses 2; testify human being. In Surah Bakra verse 124; Ibrahim (AS) successfully fulfilled examination, the son was ready for sacrifice, dear father does command which you get an order from God. ALLAH creates an animal for eating meat for the human being. Quarbani is compulsory everyone who can afford.”

“Quarbani animal should not be disabled, sick, and blind. There are different age category implement on various animals; sheep and goat must be one year, a cow must be two years, the camel must be five years, these are the minimum age limit to sacrifice under Islamic laws. Quarbani animal slaughter after offering Eid-al-Adha prayer. The quarbani animal should be slaughtered with a sharp knife because while slaughtering animal feel less pain. Quarbani animal meat is divided into three parts; one for poor’s, one for relatives, friends, and neighbours and one part keep hold at home. However, there is not any compulsory rule to distribute of quarbani animal into three parts, but we can say that” sharing is caring” because some people eat to meat only on Eid MMF due to poorness factor. Islam allowed quarbani animal entire meat to keep hold at home. However, quarabni animal skin uses for leather products and Quarbani animal blood increases the fertility of the soil.”

“Quarbani MMF provide jobs to slaughter men and also contribute in the leather industry. It plays a positive role in Muslim country’s economy. Quarbani is a process/chain to provide job opportunities to countless people and increase the profit of sheep producer farmers. Quarbani is a soul of piety (Taqwa). In Surah Hajj verses

37 that your animal blood and meat do not reach to GOD but only one thing which is reached called Taqwa. Without Taqwa, qarabani is useless/ not accepted. Taqwa/piety is a key driver for getting the qarab of God. Remember Quarbani is not custom and tradition; it is religious faith and beliefs of the Muslims”.

She discussed that Quarbani existed in other religion before Islam. It is the process to near to ALLAH. Therefore, Muslim sacrifice everything in the way of ALLAH for getting HIS qarab. Usually, MMF occurred each year on 10 Dull-hajj after offering Hajj in Haram and all over the world. God wants to check piety/Taqwa by qarabani that how much obedience HIS commanded and reminder Sunnah of Prophet Ibrahim (AS). However, three times mentioned of word “Quarbani” holy book of Quran in different verses that also show the significance of this huge MMF. God sends us on the earth for examination/testify human being. Although Quarbani is a compulsory element for Muslim, who can afford to buy lamb/sheep. Quarbani animal looks healthy, and minimum age restriction implement on lamb/sheep/goat, cow, and camel respectively 1, 2, and five years. The qarabani animal slaughter by sharp knife because feel less pain. There is no specific rule in Islam to distribute whole meat carcass keep hold at home either divided into three parts such as 1/3 family, 1/3 friends/relatives, and 1/3 poor’s.

Quarbani MMF can promote the leather and meat industry and creates job opportunity that affects positively on Muslim country economy. This thing shows that MMF can make more profitable and sustainable Norwegian sheep farming (1-year-old sheep) by occurring MMF in Norway in existing slaughterhouse under Islamic laws. Because older than one-year sheep sell by farmer very less price that damage to sheep farming system in Norway. However, Norwegian sheep farming system is the biggest among the Nordic countries. Therefore, Norwegian government should revise their policies which support sheep farming system that generate a reasonable profit for sheep farmers who depend on their livelihoods only this sector because huge meat buyer fragile sheep industry by offering less price of sheep (>12 months) that disappoint farmers getting less earning after hard working. Although Norwegian sheep farming contributes 80% of total farms income of the farmers (Skonhøft et al., 2010) which shows that the sustainability factor in this sector will enhance the sheep farming profit/revenue and a positive impact on the Norwegian economy.

6. Discussion and conclusion

There are many hurdles that occurred during the interview process. The first challenge was to find a gender balance, or enough female Muslim respondents. During these female interviews, we found that some respondent were not feeling comfortable due to both of us were male students. They may have felt to hesitate for giving answers to the questionnaires. Another big challenge was to manage time between the interviewer and interviewee, due to a busy schedule of the respondents. Most of the interviewee was busy in their jobs and personal lives. We conducted most of the male interviews at their workplace and females at home. We interviewed Muslim Imams but to get an appointment with them was challenging. In the end, the final challenge was the language barrier. It was difficult to explain the questions to some of the respondents as they did not understand English and we are not Norwegian. Therefore, we did some interviews in our native language and translated the answers back into English in retrospect.

6.1 To better understand the meat consumption and preferences of Norwegian Muslims of Pakistani origin in Oslo

The results showed that religious beliefs, faith, psychological, and culture factors were dominant on the consumer attitudes, perceptions and preferences of meat regarding halal for Pakistani Muslim consumers in Norway. It does not only affect the halal meat preferences among those who came from Pakistan but also for Pakistani Muslim born in Norway. The study showed that most respondents preferred halal meat, this includes the highly educated Pakistani Muslims, and they also were concerned about the animal feeding system. This fits well with other studies showing that educated Muslims strongly prefer to consume halal meat products (Fam et al., 2004; Lawan, & Zanna, 2013; ElshamesElghawi, 2015). Educated Muslims prefer certified halal meat because it is easier to trace animal origin and feeding methods (Moothy & Hawkin, 2005; Narasimhan et al., 2005; Bonne et al., 2007; Verbeke et al., 2013; Mohayidin & Kamaruizaman, 2014). Also, consumers are willing to pay high prices due to certified halal labels that indicate safety, quality, and reliability (Montossi et al., 2013). The growth in the Muslim population shows a demand for halal meat in Norway (Bhatti et al., 2019). The current study found that Muslim consumers are willing to buy halal meat products at higher prices than other meat, and this shows a strong religious beliefs and faith, but also that safety and quality is important. This has been documented in several other studies

(Hanekom, 2010; Troy & Kerry, 2010; Henare & Shepherd, 2012; Alhazmi, 2013; Montossi et al., 2013; Kalam, 2015; Zulfakar, 2015). Muslim consumers prefer lamb/sheep more other types of animals. This as well can be linked to religious and cultural influences (Bonn & Verbek, 2008; Sungkar, 2008; Montossi et al., 2013). Furthermore, an increased demand for halal meat products is not only caused by Muslim consumer preferences but also among the Non-Muslim consumers that trust halal meat due to cleanness, safety, quality, and hygiene issues. Therefore, some multi-national food chain has introduced halal meat products in their menu (Eisingerich & Bell, 2007; Aziz & Chok, 2013; Farouk, & Fathima, 2017; Bhatti et al., 2019).

The majority of the Pakistani consumers in Oslo preferred special portions of the meat, such as lamb lower and chop, and this due to better taste, juiciness, or internal satisfaction, and they were willing to pay extra for such meat. Usually, Muslim consumers in Oslo preferred to prepare lamb meat at home, instead of eating outside. Important explanations for this was to the halal factor and hygiene issues. Therefore, whenever the Pakistani family visits restaurants, they mostly ordered fish and chicken meat, which showed a strong tie with religion and culture. In general, from literature it is known that Muslim consumers prefer freshness (Risvik et al., 1994; Acebron & Dipico, 2000; Grunert, 2006; Hanekom, 2010). Furthermore, consumers prefer to eat young animal, like from lamb/sheep's, and this due to tenderness, better taste, less fat, and flavour (Lawan, & Zanna, 2013; ElshamesElghawi, 2015). Ready-to-eat halal dishes was not so popular among the examined Muslim consumers in Oslo, the majority did not even know about the availability of such halal dishes in the Norwegian market. Some consumer said they would check at least once, but that halal surety and definitely in of major importance. Other studies have shown halal to be the first priority (Mohayidin & Kamaruizaman, 2014).

The visible halal logo information plays a vital role among Norwegian Muslim consumers in purchasing lamb/sheep meat in the supermarket without any doubt non-halal ingredients contamination. Therefore, Muslim consumers might be able to buy halal meat products in a supermarket without hesitation regarding their religious beliefs, faith, trust, and culture influences. A correct halal labelling could enhance the purchasing power of halal meat products among Muslim consumers. This could be developed into supermarkets in Norway, and they could gain from this as it could promote the lamb/sheep meat industry. The Muslim population has a significant growth in Norway, which can reveal the potential of a halal meat

market in Norway. This is also pointed out in other studies (Ali et al., 2012; Salman & Siddiqui, 2012; Sherwani et al., 2018; Bhatti et al., 2019).

The Muslim consumers are highly influenced by halal logo/certification due to trust, religious beliefs and cultural norms. It is easier for the consumers to rely on the meat products as well as it represents a traceability regarding the origin, animal breed, and slaughtered method. The halal logo/certification reduces the uncertainty for Muslim consumers and make the buying more trustable. (Bonne & Verbeke, 2008; Verbeke et al., 2013; Mohayidin & Kamaruizaman, 2014; Zulfakar, 2015; Cottle & Cowie, 2016; Meixner et al., 2018).

Due to the possible reason of halal authenticity, most of the interviewees prefer to eat at home instead of going to a restaurant. Otherwise, they prefer to eat fish in restaurants. However, they always preferred to eat lamb/sheep meat as homemade due to trust regarding quality, safety, taste, hygiene, halal issues. This again show strong influences of religion, belief and culture (Essoo & Dibb, 2004; Kotler, 2006; Mokhlis, 2006; Noland, 2007; Budiman, 2012; Liebenberg, 2016; Farouk, & Fathima, 2017).

Muslim consumer always preferred to utilise Norwegian based lamb/sheep meat due to better taste, freshness, tenderness, healthier, trust, rich nutrition's, easily traceable, convince, accessible and better farming system. The survey showed that origin is the most important factor for the examined Muslim consumer in Oslo. Origin is an issue in many studies (Han & Terpstra, 1988; Boliger & Reviron, 2008; Magdelaine et al., 2008; Vukasovic, 2009; Meixner et al., 2018), thus our findings are not unique.

Pakistani Muslims in Oslo use to buy lamb/sheep meat from local butcher due to trust, confident, religious identity, and well known Muslim shopkeeper, therefore they put trust on them regarding halal attribute, which is compulsory elements for Muslims due to religious beliefs and faith. Halal certification and origin of meat products is especially important whenever they buy from supermarket, even at the presence of Muslim staff. From literature, it is known that Muslim consumer prefer to buy halal meat from the local butcher (Montossi et al., 2013; Zulfakar, 2015; Sherwani et al., 2018).

The majority of the interviewed Muslim consumers in Oslo believed that the feeding system influence lamb/sheep meat quality, and taste. However, educated consumers preferred natural feeding as compared to concentrate/intensive feeding system. They regarded grass-based feeding systems on pastures as the most animal-friendly way of feeding and that such feeding

produces tastier and healthier lamb/sheep meat. Similar research results has been reported by others (Rousset-Atkin et al., 1997; Berg, 2002; Hanekom, 2010; Furnols et al., 2011).

These days consumer also preferred to look at label about animal welfare attribute, but the majority of Pakistani consumers in Norway are not well aware of it. Although European citizens always preference to animal welfare majority of European consumers buy meat products without evaluating animal welfare. However, Animal welfare preferences changed by consumer age, origin and education level (Grunert & Valli, 2001; Montossi et al., 2013).

The consumer survey results showed above that Norwegian sheep farming can make more sustainable by increasing the production of halal meat because of Muslim population significant growth from the last decades in Norway as refugee immigrants. However, Muslims are religiously and culturally prefer to utilise lamb/sheep meat for cooking at home as well as various events. Also Notura meat processor alone data showed that production halal meat production has increased from 200 tonnes to 900 tonnes respectively 2008 to 2012 which is a clear indicator of halal eaters Muslim that can make a sustainable and profitable of Norwegian sheep farming. Muslim consumer is the best choice for meat industry within a Norway to make a more profitable business for sheep farmers because overproduction of sheep farmers lead to fragile sheep farmers economy due to the selling of sheep on less price especially one/more than one-year-old sheep.

Consumer sheep meat/meat consumption by religious belief

Generally, religion has influenced on individual consumer behaviour, attitude, wellbeing, and lifestyle (Alqudsi, 2014). Consumer behaviour is affected by various factors such as religion, cultural, social and psychological characteristics. Cultural and religious ethnicity would be dominant in influencing the intention and consumers behaviour in terms of the halal meat purchasing products (Soesilowati, E. S. 2011). The influence of religion impact on the eating habits of the consumer which deals with faith values, attitude, and taught by generation to generation (Fam, Waller, & Erdogan, 2004). Also, consumer decision to buy food and consumption depending on religious identity (Soesilowati, 2011). Islam is more than a religion which controls each factor in the society (Fam, Waller, & Erdogan, 2004).

The religious belief influences depending on consumer attitude or perception behaviour regarding food choices in different circumstances (Essoo & Dibb, 2004; Budiman, 2012). However, those consumers who have strong religious characteristics, beliefs, faith, and

commitment which effects on consumer attitudes towards the attributes of products (Beit-Hallahmi & Argyle, 1997; Budiman, 2012).

The impact of religion is an important factor that effects on consumers behaviour regarding food buying decision and eating habits (Pettinger, Holdsworth, & Gerber, 2004; Meixner, Friedl, & Hartl, 2018). Also, it can differ from one culture or origin of the country to another (Sood, & Nasu, 1995) although the religion plays a significant role in many societies in determining food selection (Assadi, 2003). However, most religions prohibition on the consumption of meat products due to cultural habits and rituals (Fiddes, 2004; Baazeem et al., 2016). Every religion has its own values and obligations in terms of food products selection. For instance, in Judaism is forbidden to eat pork, and beef and pork are forbidden in Hinduism and Buddhism and Islam impose specific restriction on Muslim consumers, it is not only prohibited on pork, alcohol and dead meat, food must be halal according to the principles of Islam (Meixner et al., 2018). The religion of Islam has built on five pillars, which consist of salat or prayer, witnessing, hajj or pilgrimage, zakah or charity and sawm or fasting (Bonne et al., 2007). Muslim consumers prefer to buy halal label food in the supermarket (Nakyinsige et al., 2012). Although the halal-certified product is an essential factor for Muslim consumers, other food attributes like as price and purchase decision (Meixner et al., 2018). For example, in the USA 75% of Muslim follow their prescribed dietary rules as compared only 16% jaws (Sherwani et al., 2018). Moreover, those people who live in as a minority in other countries, societies, and cultures, it could be difficult for them to retain their dietary standards in the presence of existence different culture and religion (Ali et al., 2017).

Muslim consumers preference halal food whether they are certified or not but it is religious and moral obligation (Ali et al., 2017). For halal food products, trust is a vital factor for Muslim consumers because the consumer cannot verify after consumption of meat whether it was halal regarding Islamic laws. The trustworthy has significant effects on the attitude of consumer behaviour intention to purchasing decision of halal food. The halal meat issue is a challenge in a non-Muslim country with a Muslim population. Therefore, it is a crucial factor for market holders to understand the intention of Muslim consumers regarding halal food brand/logo for increasing the worth of meat consumption (Sherwani et al., 2018).

6.2 To explore the potential in Muslim Meat Festival (Eid al-Adha) on Norwegian sheep production as a new niche in the meat market

The literature data showed there is no balance between Norwegian sheep meat production and consumption. Therefore, Norwegian sheep farmers get less price of one-year-older sheep due to overproduction that destroys the sheep farmer's economy and also a negative impact on the Norwegian economy. This thing irritates and frustrates to farmers due to not get a reasonable price and profit for each sheep. For example, on Christmas events almost 27,445 tonnes sheep meat produced in 2017 (Bhatti et al., 2019) although high demand of lamb meat on the charismas but could not consume by consumers in big quantity, therefore, rest of meat frozen by chiller storage. However, a consumer cannot get fresh meat whole year due to the Norwegian slaughter system because slaughtering period from September to December. The rest of the year consumer use to frozen sheep meat, which does not have sensory taste, flavour, and nutrition value like fresh meat. Also, during the winter season, sheep farmers should be reduced their flock size due to escape from extra cost because one year older sheep price is very low that cause to destroy the sheep meat producer's economy. MMF is the best option for sheep farmers to earn revenue and sell their one-year-older sheep on the better price that will probably promote to a halal sheep meat market and make a sustainable Norwegian sheep farming system.

The Muslim population accounts for 4.2% of the population in Norway and is increasing rapidly (Bhatti et al., 2019). Muslim always prefer to follow their dietary laws according to Islam regarding halal and haram meat ((Ireland & Rajabzadeh, 2011). The sheep meat industry has a big potential in the Norwegian market as regarded to Muslim consumer in terms of halal meat, which can open new economy doors for sheep farmers for making a more profitable business. However, in Europe, where Muslims are living as a minority, they prefer to eat halal lamb/sheep meat due to religious and culture influence. This thing shows that a positive aspect of Muslim consumer by the consumption of lamb meat which can promote to Norwegian sheep farming system as a sustainable way due to the growth of Muslim population in Norwegian society that open doors a new meat market niche (Lever & Miele, 2012; Montossi et al., 2013). Because the majority of consumer prefers to buy halal sheep meat from the local butcher and well-known person due to trust and self-identity (Bhatti et al., 2019). Furthermore, the Muslim population is projected to be 6.1 % out of total population until 2030 (Brunborg & Texmon,

2011) which shows the potential of halal lamb/sheep market in Norway. Also, the halal food industry is considered the largest industry in the world due to the consumption of meat under Islamic laws (Sungkar, 2008, 2009).

Muslim celebrate religious festival Eid-al-Adha as regarded MMF all over the world a year. However, meat dishes are very common among the Muslims especially lamb/sheep meat due to religious festivals. Usually, Muslim slaughtered lamb/sheep animal older than one year on MMF. Muslim consumer prefers halal meat, and MMF offers a significant marketing opportunity for the sheep meat industry that increases the demand for halal meat market specifically in Oslo (Bhatti et al., 2019). However, Norwegian farmers use to selling their sheep to commercial halal meat industry, but the MMF is huge potential for sheep farmers (Bhatti et al., 2019) to make better money per sheep due to the growth of Muslim population in Norway.

The halal meat processing method is similar to organic meat (Bonne & Verbeke, 2008) which is permissible and clean under Islamic laws (Montossi et al., 2013). The importance of lamb meat consumption in Islam can be seen on pilgrimage (Hajj) when every participant should be sacrificed lamb or mutton in the way of GOD which is supposed approximately 2 million healthy lambs or mutton slaughtered in Mecca during Hajj a year, without any health problem due to sacrifice is done with proxy (Montossi et al., 2013). This annual consumption increases because those Muslim who could not go on pilgrimage in Saudi Arabia, some of them also sacrifice lamb or mutton at the same time every year in their homeland. Also, Muslim prefers to eat lamb, goat, or mutton other festivals such as marriage ceremony, the birth of a new-born baby etc.. Muslim consumers prefer to consume lamb meat for religious purposes as well as in daily diet (Montossi et al., 2013).

However, Norwegian Muslim consumers are facing many challenges due to not permitted to slaughtered sheep animal on MMF. Although MMF date varies, every year that does not occur during the September-December according to Norwegian slaughtering system is higher only these months. Generally, Muslim slaughter lamb/sheep animals more than 12 months older on this religious MMF that could help to make more sustainable and profitable Norwegian sheep farming because elder than 12 months sheep prices are very low that cause to fragile sheep farmers economy and disappointed them due to not earn reasonable price their hard work. If the Norwegian government permit to Muslim to sacrifice sheep animals in existing slaughterhouse under Islamic laws according to religious festival date that will create a huge

opportunity for Norwegian sheep farmers and new halal meat market niche. Due to restricted laws, Muslims are not allowed to sacrifice sheep animals in Norway. Therefore, they adopt another way; some of them send money to relatives and families their homeland, and some of them send money to a charity organisation, which arranged MMF in specific areas. If the Norwegian government will amendments in laws regarding occurring sacrifice sheep animals events in existing slaughterhouse under Islamic laws that increase the earning of sheep farmers older than one year sheep which motivated to farmers to expand their sheep farming business as regarded sustainable way in Norway (Bhatti et., 2019).

In Norway, there is no separate halal slaughterhouse or specific place to permit slaughter animals on MMF. The halal slaughtering is done using existing slaughterhouse practices. Therefore, the slaughter of sheep age (>12 months) conducted on the MMF in existing slaughterhouses and meat is delivered in Muslim grocery shops as the regular array of meat products. After purchasing the halal carcass, the meat is a divide in three parts among family, friends/relatives/neighbours, and the poor as well. However, the majority of the Muslims buy to year-old sheep at MMF before almost 1-2 months from the actual slaughter date in Muslim countries although sheep (\geq 1-year-old) is to be the best to fulfil the need for the MMF (Bhatii et al., 2019).

6.3 To investigate the viewpoints of Muslim Imams in Oslo

The interviews data of Imams showed that a significant of lamb/sheep animal among the Muslims due to religious festivals Eid-al-Adha. MMF occurs on the same date and time a year in the Muslim communities around the world, and it is the biggest MMF/ Muslim ritual in the world. This event creates job opportunities and promotes meat, wool, and leather industry across the global. Usually, Muslim prefers to sacrifice sheep elder than one year that relates to the Norwegian sheep farming scenario, where farmers always offer less price from the meat industry older than one year's sheep. Therefore, sheep farmers are not able to earn reasonable money due to this black spot, which is rather made by the meat buyer industry. Now, MMF is the best choice for sheep farmers especially (>12 months old sheep) for earning better price of every sheep in Norway. If the Norwegian Government provide facilities to sacrifice sheep animal in existing slaughterhouse under Islamic laws, which help to overcome less price elder sheep one year and promote a sheep farming as in a sustainable way, this step is not only to improve sheep farmers living standard and economy, but it is also positive impact Norwegian

economy and motivated to sheep farmers to expand their business which is helpful to conserve the traditional Norwegian landscape. However, Muslim immigrants have increased rapidly from the last few years in Norway that shows halal meat market bright future in the Norwegian market.

In Norwegian scenario, there had been conversations between Imam and Bishops, and there should be more dialogues for better integrity with Imam and the Norwegian Lutheran Church (O.C., Kvarme, Bishop emeritus - Oslo, pers. communication, 2019) and other denominations (Guardian, 2019).

Also, it is essential that the Norwegian meat industry should be reviewed by production and marketing strategies to meet the demands of growing halal consumers. However, the demand for sheep meat is substantially increasing in Norway by meat eaters along without compromising the environment. Although Norwegian sheep farmers face higher feed cost in winter as compared to summer season because in summer grazing areas are free of cost in mountainous and forest areas as regarded natural feed which can improve economic and environmental sustainability. Furthermore, yearling animals supply on MMF may be reduced to slaughtering facilities seasonal pressure and satisfied the MMF (halal) market. The MMF is the best choice for sheep farmers to sell yearling sheep on better prices instead to sell meat buyer industry which exploitation the economy of sheep farmers by offering less price one year older sheep.

By growing Muslim population, the demand for halal meat has increased in Norway, and this is a potential in the existing meat market. Therefore, Norwegian sheep farmers should rethink their production strategies to make a more sustainable and profitable business by selling yearling sheep on the time when key religious festivals (MMF) take place, and at a reasonable price for halal meat. However, demand of halal meat will increase per capita due to higher meat consumption by Muslim consumer in Norwegian market, which can enhance the income of sheep farmers. Because Muslim always prefer lamb/sheep meat due to religious and cultural influences especially halal factor that is dominant on the consumer decision making to purchase meat products. In order to make Norwegian sheep farmers and sheep meet industry can use the findings of the Muslim consumer survey and the significance of MMF along with imams views about halal meat. This may favour the sheep business in a sustainable and profitable way. However, Norwegian government could implement these findings result to make a sustainable, profitable sheep farming system, and expand the meat market by

increasing the halal lamb/sheep meat production which contributes in the sheep farmer's economy and Norwegian country economy.

Concluding remarks

Norway, being the largest sheep meat producer in the Nordic countries, the potential in the halal meat market and Muslim meat festival in Norway needs to be explored. The sustainability of sheep farming is dependent in a profitable sheep farming and selling the yearling and older sheep at a better price is vital for that sustainability.

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References

- Åby, B. A., Kantanen, J., Aass, L., & Meuwissen, T. (2014). Current status of livestock production in the Nordic countries and future challenges with a changing climate and human population growth. *Acta Agriculturae Scandinavica, Section A—Animal Science*, 64(2), 73-97
- Acebrón, L. B., & Dopico, D. C. (2000). The importance of intrinsic and extrinsic cues to expected and experienced quality: an empirical application for beef. *Food quality and preference*, 11(3), 229-238.
- Adams, I. A. (2011). Globalization: Explaining the dynamics and challenges of the halal food surge. *Intellectual discourse*, 19, 123-145.
- Adams, W. (August 2015). Conducting Semi-Structured Interviews. Retrieved 24 April 2019 from https://www.researchgate.net/publication/301738442_Conducting_Semi-Structured_Interviews
- AgMRC. (November 2018). International Lamb Profile. Retrieved 14 February 2019 from <https://www.agmrc.org/commodities-products/livestock/lamb/international-lamb-profile>
- AHDB. (2016). World sheep meat market to 2025. Retrieved 20 February 2019 from <http://beefandlamb.ahdb.org.uk/wp-content/uploads/2016/01/World-sheep-meat-market-to-2025.pdf>
- Ahmed, A. (2008). Marketing of halal meat in the United Kingdom: Supermarkets versus local shops. *British Food Journal*, 110(7), 655-670
- Alhazmi, H. K. H. (2013). *New Zealand Muslim consumer attitudes towards purchasing halal foods* (Doctoral dissertation, Auckland University of Technology). Retrieved 3rd December 2018 from <http://aut.researchgateway.ac.nz/bitstream/handle/10292/5857/AlhazmiHKH.pdf?sequence=3&isAllowed=y>
- Ali, A., Xiaoling, G., Sherwani, M., & Ali, A. (2017). Factors affecting Halal meat purchase intention: Evidence from international Muslim students in China. *British Food Journal*, 119(3), 527-541.
- Ali, R., Marzuki, S. Z. S., & Halim, R. A. (2012). The awareness towards Halal logo attributes among customers of halal certified restaurants: an exploratory study. In *2nd Global Islamic Conference, Global Islamic Marketing Association, Abu Dhabi*(pp. 307-313).

- Alqudsi, S. G. (2014). Awareness and demand for 100% halal supply chain meat products. *Procedia-Social and Behavioral Sciences*, 130, 167-178.
- Altieri, M. A. (2018). *Agroecology: the science of sustainable agriculture*. CRC Press.
- Altieri, M. A., Farrell, J. G., Hecht, S. B., Liebman, M., Magdoff, F., Murphy, B., ... & Sikor, T. O. (2018). Toward sustainable agriculture. *In Agroecology* (pp. 367-379). *CRC Press*.
- Ambali, A. R., & Bakar, A. N. (2014). People's awareness on halal foods and products: potential issues for policy-makers. *Procedia-Social and Behavioral Sciences*, 121, 3-25.
- Animalia. (2017). Sauekontrollen. Retrieved 10 December 2018 from <https://www.animalia.no/globalassets/sauekontrollen--dokumenter/arsmelding-2016-endelig.pdf>.
- Anir, N. A., Nizam, M. N. M. H., & Masliyana, A. (2008, May). RFID tag for Halal food tracking in Malaysia: users perceptions and opportunities. *In WSEAS International Conference. Proceedings. Mathematics and Computers in Science and Engineering* (No. 7). World Scientific and Engineering Academy and Society.
- Asheim, L. J., & Mysterud, I. (1999). The Norwegian sheep farming production system. *Options Méditerranéennes. Série A: Séminaires Méditerranéens (CIHEAM)*.
- Asheim, L. J., Eik, L. O., & Dellal, I. (2013). Production Systems for the Muslim Goat's Meat Market. *Tanzania Journal of Agricultural Sciences*, 12(2).
- ASI. (2019). Agricultural Sustainability Institute. Last updated 8 January 2019. Retrieved 3 February 2019 from <https://asi.ucdavis.edu/programs/ucsarep/about/what-is-sustainable-agriculture>
- Assadi, D. (2003). Do religions influence customer behavior? Confronting religious rules and marketing concepts. *Databases*, 22(10).
- Atalan-Helicke, N. (2015). The halal paradox: negotiating identity, religious values, and genetically engineered food in Turkey. *Agriculture and Human Values*, 32(4), 663-674.
- Atautis, R., Kazakeviciute, A., & Tarutis, M. (2014). Controllable factors impact on consumer online behaviour. *Economics and Management*, 19(1), 63-71.
- Austgulen, M. H. (2014). Environmentally sustainable meat consumption: An analysis of the Norwegian public debate. *Journal of Consumer Policy*, 37(1), 45-66.
- Austrheim, G., Asheim, L. J., Bjarnason, G., Feilberg, J., Fosaa, A. M., Holand, Ø., ... & Mysterud, A. (2008). Sheep grazing in the North-Atlantic region—A long term

- perspective on management, resource economy and ecology. *Rapport zoologisk serie*, 3, 86.
- Awan, H. M., Siddiquei, A. N., & Haider, Z. (2015). Factors affecting Halal purchase intention—evidence from Pakistan’s Halal food sector. *Management Research Review*, 38(6), 640-660
- Aziz, Y. A., & Chok, N. V. (2013). The role of Halal awareness, Halal certification, and marketing components in determining Halal purchase intention among non-Muslims in Malaysia: A structural equation modeling approach. *Journal of International Food & Agribusiness Marketing*, 25(1), 1-23.
- Azorín, J. M., & Cameron, R. (2010). The application of mixed methods in organisational research: A literature review. *Electronic Journal of Business Research Methods*, 8(2), 95. Retrieved 03 March 2019 from https://www.researchgate.net/publication/228933128_The_Application_of_Mixed_Methods_in_Organisational_Research_A_Literature_Review
- Baazeem, T., Mortimer, G., & Neale, L. (2016). Conceptualising the relationship between shopper religiosity, perceived risk and the role of moral potency. *Journal of Consumer Behaviour*, 15(5), 440-448.
- Badgery, W. B., Mitchell, D., Millar, G. D., Broadfoot, K., Michalk, D. L., Cranney, P., & Brown, W. (2017). Designing a grazing-system experiment for variable native pastures and flexible lamb-production systems. *Animal Production Science*, 57(9), 1785-1798.
- Badrudin, B., Mohamed, Z., Sharifuddin, J., Rezai, G., Mahir Abdullah, A., Abd Latif, I., & Ghazali Mohayidin, M. (2012). Clients' perception towards JAKIM service quality in Halal certification. *Journal of Islamic Marketing*, 3(1), 59-71.
- BBC. (2019). Bitesize. Retrieved 10 march 2019 from <https://www.bbc.com/bitesize/guides/zrg9mp3/revision/2>
- Becker, T., Benner, E., & Glitsch, K. (2000). Consumer perception of fresh meat quality in Germany. *British Food Journal*, 102(3), 246-266.
- Beit-Hallahmi, B., & Argyle, M. (1997). The psychology of religious belief, behaviour and experience.
- Bekkerman, A., Brester, G. W., & Tonsor, G. T. (2019). An alternative approach to measuring demand changes in meat markets. *International Food and Agribusiness Management Review*, 1-16.

- Berg, L. (2002). Dyr er ikke bare mat. Om synet på dyrevelferd i Norge. *Animals are not only food: perceptions on animal welfare in Norway*"), Statens Institutt for Forbruksforskning, Oslo
- Bernabéu, R., & Tendero, A. (2005). Preference structure for lamb meat consumers. A Spanish case study. *Meat Science*, 71(3), 464-470.
- Bhatti, M. A., Williams, T., Hopkins, D. L., Asheim, L. J., Steinheim, G., Campbell, M., ... & Ådnøy, T. (2019). Adapting Seasonal Sheep Production to Year-Round Fresh Meat and Halal Market in Norway. *Sustainability*, 11(6), 1554.
- Blokhuis, H. J., Jones, R. B., Geers, R., Miele, M., & Veissier, I. (2003). Measuring and monitoring animal welfare: transparency in the food product quality chain. *Animal welfare-potters bar then wheathampstead-*, 12(4), 445-456.
- Bolliger, C., & Reviron, S. (2008). *Consumer willingness to pay for Swiss chicken meat: an in-store survey to link stated and revealed buying behaviour (No. 725-2016-49563)*. Retrieved 2 October 2018 from <https://ageconsearch.umn.edu/record/44155/files/204.pdf>
- Bonne, K., & Verbeke, W. (2006). Muslim consumer's motivations towards meat consumption in Belgium: qualitative exploratory insights from means-end chain analysis. *Anthropology of food*, (5).
- Bonne, K., & Verbeke, W. (2008). Muslim consumer trust in halal meat status and control in Belgium. *Meat science*, 79(1), 113-123.
- Bonne, K., & Verbeke, W. (2008). Religious values informing halal meat production and the control and delivery of halal credence quality. *Agriculture and Human Values*, 25(1), 35-47
- Bonne, K., Vermeir, I., Bergeaud-Blackler, F., & Verbeke, W. (2007). Determinants of halal meat consumption in France. *British Food Journal*, 109(5), 367-386.
- Boyce, C., & Neale, P. (2006). Conducting in-depth interviews: A guide for designing and conducting in-depth interviews for evaluation input.
- Brooker, R. W., Karley, A. J., Newton, A. C., Pakeman, R. J., & Schöb, C. (2016). Facilitation and sustainable agriculture: a mechanistic approach to reconciling crop production and conservation. *Functional ecology*, 30(1), 98-107.
- Broom, D. M., Galindo, F. A., & Murgueitio, E. (2013). Sustainable, efficient livestock production with high biodiversity and good welfare for animals. *Proceedings of the Royal Society B: Biological Sciences*, 280(1771), 20132025.

-
- Brunborg, H., & Texmon, I. (2011). Befolkningsframskrivning 2011-2100: Modell og forutsetninger. Retrieved 15 march 2019 from https://brage.bibsys.no/xmlui/bitstream/handle/11250/178856/brunborg_texmon_2011.pdf?sequence=1
- Bryman, A. (2016). *Social research methods*. Oxford university press.
- Budiman, S. (2012). Analysis of consumer attitudes to purchase intentions of counterfeiting bag product in Indonesia. *International Journal of Management, Economics and Social Sciences*, 1(1), 1-12.
- Cao, Y., & Li, D. (2013). Impact of increased demand for animal protein products in Asian countries: Implications on global food security. *Animal frontiers*, 3(3), 48-55
- Capps Jr, O., & Williams, G. W. (2011). *Analyzing the Effectiveness of the Lamb Promotion, Research, and Informational Order* (No. 1406-2019-1480).
- Chambers, S., Lobb, A., Butler, L., Harvey, K., & Traill, W. B. (2007). Local, national and imported foods: a qualitative study. *Appetite*, 49(1), 208-213.
- Choi, Y., Kale, R., & Shin, J. (2010). Religiosity and consumers' use of product information source among Korean consumers: an exploratory research. *International journal of consumer studies*, 34(1), 61-68
- Clark, M., & Tilman, D. (2017). Comparative analysis of environmental impacts of agricultural production systems, agricultural input efficiency, and food choice. *Environmental Research Letters*, 12(6), 064016.
- Classen, A. (2007). The symbolic function of food as iconic representation of culture and spirituality in Wolfram von Eschenbach's Parzival (ca 1205). *Orbis Litterarum*, 62(4), 315-335
- Conway, G. R., & Barbier, E. B. (2013). *After the green revolution: sustainable agriculture for development*. Routledge.
- Coombs, C. E., Holman, B. W., Friend, M. A., & Hopkins, D. L. (2017). Long-term red meat preservation using chilled and frozen storage combinations: A review. *Meat Science*, 125, 84-94
- Cottle, D. J., & Cowie, A. L. (2016). Allocation of greenhouse gas production between wool and meat in the life cycle assessment of Australian sheep production. *The International Journal of Life Cycle Assessment*, 21(6), 820-830.
- Cowan, C. (1998). Irish and European consumer views on food safety. *Journal of food safety*, 18(4), 275-295.

- Crosson, P. R. (2016). Sustainable agriculture. In *Global Development and the Environment* (pp. 61-68). Routledge.
- Danijela, Š., Slobodan, L., Vesna, Đ., Dragan, M., Danijela, V., Brankica, L., & Milan, M. (2011). The role of consumers' perception and attitude in purchasing of meat and meat products. *Meat Technology*, *52*(2), 283-290. Retrieved 15 October 2018 from https://www.researchgate.net/publication/235780656_The_role_of_consumer_perception_and_attitude_in_purchasing_of_meat_and_meat_products
- de Andrade, J. C., de Aguiar Sobral, L., Ares, G., & Deliza, R. (2016). Understanding consumers' perception of lamb meat using free word association. *Meat science*, *117*, 68-74
- DeLonge, M. S., Miles, A., & Carlisle, L. (2016). Investing in the transition to sustainable agriculture. *Environmental Science & Policy*, *55*, 266-273.
- Domke, A. V. M., Chartier, C., Gjerde, B., Leine, N., Vatn, S., & Stuen, S. (2013). Prevalence of gastrointestinal helminths, lungworms and liver fluke in sheep and goats in Norway. *Veterinary parasitology*, *194*(1), 40-48.
- Drew DeSilver, D., & Masci, D. (January 31, 2017). World's Muslim population more widespread than you might think. *Pew Research Center*. Retrieved from 6 September 2018 from <http://www.pewresearch.org/fact-tank/2017/01/31/worlds-muslim-population-more-widespread-than-you-might-think/>
- D'Silva, J., & Webster, J. (Eds.). (2017). *The Meat Crisis: Developing More Sustainable and Ethical Production and Consumption*. Routledge.
- Eikje, L. S., Ådnøy, T., & Klemetsdal, G. (2008). The Norwegian sheep breeding scheme: description, genetic and phenotypic change. *Animal*, *2*(2), 167-176.
- Eisingerich, A. B., & Bell, S. J. (2007). Maintaining customer relationships in high credence services. *Journal of Services Marketing*, *21*(4), 253-262.
- Eliasi, J. R., & Dwyer, J. T. (2002). Kosher and Halal: religious observances affecting dietary intakes. *Journal of the Academy of Nutrition and Dietetics*, *102*(7), 911
- ElshamesElghawi. (2015). Consumer behaviour on the market with meat in Libya. Retrieved 22 October 2018 from file:///C:/Users/Ny/Downloads/zaverecna_prace.pdf
- Escriba-Perez, C., Baviera-Puig, A., Buitrago-Vera, J., & Montero-Vicente, L. (2017). Consumer profile analysis for different types of meat in Spain. *Meat science*, *129*, 120-126
- Essoo, N., & Dibb, S. (2004). Religious influences on shopping behaviour: An exploratory study. *Journal of marketing management*, *20*(7-8), 683-712.

-
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American journal of theoretical and applied statistics*, 5(1), 1-4.
- FAO. (2019). Global Livestock Environmental Assessment Model. Retrieved 10 February 2019 from <http://www.fao.org/gleam/results/en/>
- Farouk, O., & Fathima, R. (2017). Muslim and non-Muslim consumer perceptions of halal at supermarkets in a non-Muslim country: a thesis submitted to Massey University in fulfilment of the requirements for the degree of Masters in Business Studies in Marketing (*Doctoral dissertation, Massey University*). Retrieved 3 October 2018 from https://mro.massey.ac.nz/bitstream/handle/10179/12703/02_whole.pdf?sequence=2&isAllowed=y
- Ferguson, D. M., Fisher, A., Colditz, I. G., & Lee, C. (2017). The changing face of sheep production. *Advances in Sheep Welfare*, 285. Retrieved 3rd April 2019 from [https://books.google.no/books?hl=no&lr=&id=NfepDQAAQBAJ&oi=fnd&pg=PA285&dq=Ferguson,+D.+M.,+Fisher,+A.,+Colditz,+I.+G.,+%26+Lee,+C.+\(2017\).+The+changing+face+of+sheep+production.+Advances+in+Sheep+Welfare,+285.&ots=LSVbbB-Iya&sig=K-7LfSMedM9PAiD3yIBoQEa8ADI&redir_esc=y#v=onepage&q&f=false](https://books.google.no/books?hl=no&lr=&id=NfepDQAAQBAJ&oi=fnd&pg=PA285&dq=Ferguson,+D.+M.,+Fisher,+A.,+Colditz,+I.+G.,+%26+Lee,+C.+(2017).+The+changing+face+of+sheep+production.+Advances+in+Sheep+Welfare,+285.&ots=LSVbbB-Iya&sig=K-7LfSMedM9PAiD3yIBoQEa8ADI&redir_esc=y#v=onepage&q&f=false)
- Fiddes, N. (2004). Meat: A natural symbol. Routledge.
- Flaten, O. (2017). Factors affecting exit intentions in Norwegian sheep farms. *Small Ruminant Research*, 150, 1-7. Retrieved 11 February 2019 from https://brage.bibsys.no/xmlui/bitstream/handle/11250/2469446/2017_10.1016.j.smallrumres.2017.02.020_av.pdf?sequence=2&isAllowed=y
- Flick, U. (2018). An introduction to qualitative research. *Sage Publications Limited*.
- Font-i-Furnols, M., & Guerrero, L. (2014). Consumer preference, behavior and perception about meat and meat products: An overview. *Meat science*, 98(3), 361-371
- Forbord, M., Bjørkhaug, H., & Burton, R. J. (2014). Drivers of change in Norwegian agricultural land control and the emergence of rental farming. *Journal of Rural Studies*, 33, 9-19.
- Frewer, L. J., Kole, A., Van De Kroon, S. M. A., & De Lauwere, C. (2005). Consumer attitudes towards the development of animal-friendly husbandry systems. *Journal of Agricultural and Environmental Ethics*, 18(4), 345-367.
- Gajjar, N. B. (2013). Factors affecting consumer behavior. *International Journal of Research in Humanities and Social Sciences*, 1(2), 10-15.

- Gaughan, J. (2017). Projected Impacts of Climate Changes and Sustainability of Sheep Production Systems. *In Sheep Production Adapting to Climate Change (pp. 189-196). Springer, Singapore.*
- Ghadikolaie, F. S. (2016). The effect of halal signs and symptoms on consumers' purchase intention in Muslim and non-Muslim countries-a review. *International Journal of Business and Management Invention, 5(7)*, 44-49. Retrieved 8 October 2018 from [https://www.ijbmi.org/papers/Vol\(5\)7/version-2/F057204449.pdf](https://www.ijbmi.org/papers/Vol(5)7/version-2/F057204449.pdf)
- Ghosh, S., & Williams, G. W. (2016). Generic advertising of US lamb. *Journal of International Food & Agribusiness Marketing, 28(4)*, 373-393
- Gillani, S., Khan, M. M. S., & Ijaz, F. (2017). Factors Reinforcing Pakistan Halal Food Industry to Be the World Halal Food Hub
- Gold, M. V. (2016). *Sustainable Agriculture: The Basics (p. 1). CRC Press.*
- Grimshaw, K. E. (2013). Consumer perception of beef, pork, lamb, chicken, and fish (*Doctoral dissertation*). Retrieved 11 November 2018 from <https://oaktrust.library.tamu.edu/bitstream/handle/1969.1/151396/GRIMSHAW-THESIS-2013.pdf?sequence=1>
- Grossman, M., & Kaestner, R. (1997). Effects of education on health. *The social benefits of education, 12*, 69.
- Grunert, K. G. (2005). Food quality and safety: Consumer perception and demand. *European Review of Agricultural Economics, 32(3)*, 369-391.
- Grunert, K. G., & Valli, C. (2001). Designer-made meat and dairy products: consumer-led product development. *Livestock Production Science, 72(1-2)*, 83-98.
- Grunert, K. G., Bredahl, L., & Brunso, K. (2004). Consumer perception of meat quality and implications for product development in the meat sector—a review. *Meat science, 66(2)*, 259-272
- Guest, G., Namey, E. E., & Mitchell, M. L. (2012). *Collecting qualitative data: A field manual for applied research. Sage.*
- Hall, N. G. (2015). *Sustainable red meat from a nutrition perspective* (Doctoral dissertation, University of Pretoria). Retrieved 22 October 2018 from https://repository.up.ac.za/bitstream/handle/2263/44333/Hall_Sustainable_2015.pdf?sequence=1
- Han, C.M., Terpstra, V. (1988). Country-of-origin effects for uni-national and bi-national products. *Journal of International Business Studies, 19 (2): 235-255.*

-
- Hanekom, Y. (2010). The effect of extensive and intensive production systems on the meat quality and carcass characteristics of Dohne Merino lambs (*Doctoral dissertation, Stellenbosch: University of Stellenbosch*).
- Hanna Hills (25 November 2016). Muslim communities are growing rapidly in Norway. Retrieved 09 February 2019 from <http://norwaytoday.info/culture/muslim-communities-growing-rapidly-norway/>
- Hashim, A. H., & Othman, M. N. (2011, November). Halal food consumption: A comparative study between Arab Muslims and non-Arab Muslims consumers in Malaysia. *In Australian and New Zealand Marketing Academy (ANZMAC) Conference, Perth, Australia, November*.
- Hassan, H., & Bojei, J. (2011). The influences of religious attributes of halal products on export marketing strategy: preliminary findings. *Journal for Global Business Advancement, 4*(2), 181-191.
- Havlík, P., Leclère, D., Valin, H., Herrero, M., Schmid, E., Soussana, J. F., ... & Obersteiner, M. (2015). Global climate change, food supply and livestock production systems: A *bioeconomic analysis*.
- Havlík, P., Valin, H., Herrero, M., Obersteiner, M., Schmid, E., Rufino, M. C., ... & Frank, S. (2014). Climate change mitigation through livestock system transitions. *Proceedings of the National Academy of Sciences, 111*(10), 3709-3714.
- Henare, M., & Shepherd, B. (2012). Maori & halal economy: A mutually beneficial relationship. *University of Auckland Business School*.
- Holy Quran.
- Hughes, D. (1995). Animal welfare: the consumer and the food industry. *British Food Journal, 97*(10), 3-7.
- Humanappeal. (2017). What's the difference between the two Eids? Retrieved 10th February 2019 from <https://www.humanappeal.org.uk/news/news-2017/what-s-the-difference-between-the-two-eids/>
- i Furnols, M. F., Realini, C., Montossi, F., Sañudo, C., Campo, M. M., Oliver, M. A., ... & Guerrero, L. (2011). Consumer's purchasing intention for lamb meat affected by country of origin, feeding system and meat price: A conjoint study in Spain, France and United Kingdom. *Food Quality and Preference, 22*(5), 443-45.
- i Furnols, M. F., San Julián, R., Guerrero, L., Sañudo, C., Campo, M. M., Olleta, J. L., ... & Branscheid, W. (2006). Acceptability of lamb meat from different producing systems

- and ageing time to German, Spanish and British consumers. *Meat science*, 72(3), 545-554.
- Ireland, J., & Abdollah Rajabzadeh, S. (2011). UAE consumer concerns about halal products. *Journal of Islamic Marketing*, 2(3), 274-283.
- Jaafar, H. S., Endut, I. R., Faisol, N., & Omar, E. N. (2011). Innovation in logistics services—halal logistics.
- Jabbar, M. A., & Admassu, S. A. (2009). Assessing consumer preferences for quality and safety attributes of food in the absence of official standards: *the case of beef in Ethiopia* (No. 1005-2016-79296).
- Jallad, N. A. (2008). The concepts of al-halal and al-haram in the Arab-Muslim culture: a translational and lexicographical study. *Language design: journal of theoretical and experimental linguistics*, 10, 077-86.
- Jamal, A., & Sharifuddin, J. (2015). Perceived value and perceived usefulness of halal labeling: The role of religion and culture. *Journal of Business Research*, 68(5), 933-941
- Japar Khan, F. J. M. (2008). Halal traceability: the assurance of safety, quality and authenticity'. *The Halal Journal*, 46-47.
- Kabir, S. (2014, July). Does Australia overlook a potential trade opportunity?. In *Australian Conference of Economists (ACE), Hobart, Tasmania* (pp. 1-4)
- Kalam, M. (2015). The growth and customer demand of halal meat industry in Finland: A case study of Hakaniemen Lihakauppa: *Halal Meat*. Retrieved 5 September 2018 from http://www.theseus.fi/bitstream/handle/10024/103613/Halal_Meat_Mohammad_kalam.pdf;jsessionid=67E473504739A45E662C730C7F9894A5?sequence=1
- Kamaruddin, R., Ibrahlim, H., & Shabudin, A. (2012). Willingness to pay for halal logistics: the lifestyle choice. *Procedia-Social and Behavioral Sciences*, 50, 722-729.
- Kenkel, D. (1990). Consumer health information and the demand for medical care. *The review of economics and statistics*, 587-595
- Khalek, A. A. (2014). Young consumers' attitude towards halal food outlets and JAKIM's halal certification in Malaysia. *Procedia-Social and Behavioral Sciences*, 121, 26-34
- Kotler, P (1999). *Kotler on Marketing*. New York: *The Free Press*.
- Kotler, P. (2008). Test Item File [to Accompany] *Principles of Marketing*, [by] Philip Kotler, Gary Armstrong. *Pearson Prentice Hall*.
- Kotler, P. (2009). *Marketing management: A south Asian perspective*. *Pearson Education India*.

-
- Kotler, P., & Armstrong, G. (2006). Principles of marketing, eleven edition.
- Kotler, P., Brown, L., Adam, S., & Armstrong, G. (2004). Marketing, 6th edn. Frenchs Forest.
- Kusumawardhinia, S. S., & SRI RHH, S. R. I. D. (2016). Understanding Islamic Brand Purchase Intention: *The Effects of Religiosity, Value Consciousness, and Product Involvement*. *BE-ci*, 2016, 3rd.
- Lagerstedt, Å., Enfält, L., Johansson, L., & Lundström, K. (2008). Effect of freezing on sensory quality, shear force and water loss in beef M. longissimus dorsi. *Meat science*, 80(2), 457-461.
- Lam, Y., & Alhashmi, S. M. (2008, December). Simulation of halal food supply chain with certification system: A multi-agent system approach. *In Pacific Rim International Conference on Multi-Agents (pp. 259-266)*. Springer, Berlin, Heidelberg.
- Lamb, C. W., Hair, J. F., & McDaniel, C. (2011). Essentials of marketing. *Cengage Learning*.
- Lamb, Ch., Hair, J., McDaniel, C. (2012). Engaging and thorough, marketing. 12th Edition. *Cengage Learning*. 912 p., ISBN 9781133708582
- Lavrakas, P. J. (2008). Encyclopedia of survey research methods. *Sage Publications*
- Lawan, L. A., & Zanna, R. (2013). Evaluation of socio-cultural factors influencing consumer buying behaviour of clothes in Borno State, Nigeria. *Int. J. Basic Appl. Sci*, 1(3), 519-529.
- Leeman, J., Voils, C. I., & Sandelowski, M. (2015). Conducting mixed methods literature reviews: synthesizing the evidence needed to develop and implement complex social and health interventions. *Oxford handbook of multimethod and mixed methods research inquiry*, 167-184.
- Lemaire, G., Franzluebbbers, A., de Faccio Carvalho, P. C., & Dedieu, B. (2014). Integrated crop–livestock systems: Strategies to achieve synergy between agricultural production and environmental quality. *Agriculture, Ecosystems & Environment*, 190, 4-8.
- Lennon, A. (2017). Natural regional resilience-determining the sustainable value of a local wool industry through actor-network theory (*Master's thesis, NTNU*).
- Lever, J., & Miele, M. (2012). The growth of halal meat markets in Europe: An exploration of the supply side theory of religion. *Journal of Rural Studies*, 28(4), 528-537.
- Lever, J., Puig della Bellacasa, M., Miele, M., & Higgin, M. (2010). From the slaughterhouse to the consumer: transparency and information in the distribution of Halal and Kosher meat.

- Lichtfouse, E., Navarrete, M., Debaeke, P., Souchère, V., Alberola, C., & Ménassieu, J. (2009). Agronomy for sustainable agriculture: a review. *In Sustainable agriculture (pp. 1-7)*. Springer, Dordrecht.
- Liebenberg, C. L. (2016). An analysis of consumer preferences of meat in townships (*Doctoral dissertation, North-West University (South Africa), Potchefstroom Campus*). Retrieved 22 October 2018 from https://dspace.nwu.ac.za/bitstream/handle/10394/25478/Liebenberg_CL_2016.pdf?sequence=1&isAllowed=y
- Liefeld, J. P. (2004). Consumer knowledge and use of country-of-origin information at the point of purchase. *Journal of Consumer Behaviour: An International Research Review*, 4(2), 85-87.
- Lindridge, A. (2009). Acculturation, religion and consumption in normative political ideology. *ACR North American Advances*.
- Lusk, J. L., & Norwood, F. B. (2008). A survey to determine public opinion about the ethics and governance of farm animal welfare. *Journal of the American Veterinary Medical Association*, 233(7), 1121-1126.
- Magdelaine, P., Spiess, M. P., & Valceschini, E. (2008). Poultry meat consumption trends in Europe. *World's Poultry Science Journal*, 64(1), 53-64.
- Malindi, H.E. 2010. A framework to measure customers' perceptions of the quality of red meat. (*Dissertation – MBA*). Potchefstroom: North-West University.
- Mangal, S. K. (2007). Essential of educational psychology. New Delhi: *PHI Learning PVT. Ltd.*
- Marketingteacher. (8 May 2014). Decision making unit – marketing teacher. Retrieved 22 NOV 2018 from <https://www.marketingteacher.com/decision-making-unit-2/>
- Marzuki, S., & Zannierah, S. (2012). Understanding restaurant managers' expectations of halal certification in Malaysia.
- Matekalo-Sverak, V., Turubatović, L., & Petronijević, R. (2009). Procedures in improvement of the control of the quality of meat products-consumer protection strategy. *Tehnologija mesa*, 50(1/2), 31-36.
- Meixner, O., Friedl, R., & Hartl, B. (2018). Preferences for attributes of halal meat: empirical evidence from the Muslim community in Vienna, Austria. *International Journal on Food System Dynamics*, 9(3), 265-278. Retrieved 2 December 2018 from file:///C:/Users/Ny/Downloads/799-2722-1-PB.pdf

-
- Migiro, S. O., & Magangi, B. A. (2011). Mixed methods: A review of literature and the future of the new research paradigm. *African journal of business management*, 5(10), 3757-3764. Retrieved 03 March 2019 from http://www.academicjournals.org/app/webroot/article/article1381158713_Migiro%20and%20Magangi.pdf
- Mohamad, A. B., & Hassan, H. (2011). The influences of halal integrity on product adaptation strategy for global trade. *International Business Management*, 5(6 A), 421-426.
- Mohamed, Z., Shamsudin, M. N., & Rezai, G. (2013). The effect of possessing information about halal logo on consumer confidence in Malaysia. *Journal of International Food & Agribusiness Marketing*, 25(sup1), 73-86.
- Mohayidin, M. G., & Kamarulzaman, N. H. (2014). Consumers' preferences toward attributes of manufactured halal food products. *Journal of International Food & Agribusiness Marketing*, 26(2), 125-139.
- Mohd Yusoff, H. (2004). Halal certification scheme. *Standard & Quality News*, 11(1), 4-5.
- Mokhlis, S. (2006). The effect of religiosity on shopping orientation: an exploratory study in Malaysia. *Journal of American Academy of Business*, 9(1), 64-74.
- Montossi, F., Font-i-Furnols, M., Del Campo, M., San Julián, R., Brito, G., & Sañudo, C. (2013). Sustainable sheep production and consumer preference trends: Compatibilities, contradictions, and unresolved dilemmas. *Meat Science*, 95(4), 772-789.
- Moorthy, S., & Hawkins, S. A. (2005). Advertising repetition and quality perception. *Journal of Business Research*, 58(3), 354-360.
- Morris, S. T. (2017). Overview of sheep production systems. In *Advances in sheep welfare* (pp. 19-35). Woodhead Publishing.
- Mowen, J. C. (1987). *Consumer Behavior*. USA. ISBN: 9780023845901.
- Mowen, J. C. (1988). Beyond consumer decision making. *Journal of Consumer Marketing*, 5(1), 15-25.
- Mufti, K.I., (2013). EID ul-Adha from A to Z (part 1 of 3). Retrieved 27 February 2019 from https://www.newmuslims.com/pdf/en/ieid_ul-adhai_from_a_to_z_part_1_of_3_207_en.pdf
- Murthy, M. N. (1974). Evaluation of multi-subject sample survey systems. *International Statistical Review/Revue Internationale de Statistique*, 175-191.
- Muslimaid. (2017). Eid-ul-Fitr and Eid-ul-Adha – What is the Difference? Retrieved 10th February 2019 from <https://www.muslimaid.org/media-centre/blog/eid-ul-fitr-and-eid-ul-adha--what-is-the-difference/>

- Myhre, B., Almås, R., Gjerdåker, B., Oye, I., & Lunden, K. (2004). Norwegian agricultural history. *Akademika Pub.*
- Nakyinsige, K., Man, Y. B. C., & Sazili, A. Q. (2012). Halal authenticity issues in meat and meat products. *Meat Science, 91*(3), 207-214.
- Narasimhan, C., He, C., Anderson, E. T., Brenner, L., Desai, P., Kuksov, D., ... & Staelin, R. (2005). Incorporating behavioral anomalies in strategic models. *Marketing Letters, 16*(3-4), 361-373.
- Nardone, A., Ronchi, B., Lacetera, N., Ranieri, M. S., & Bernabucci, U. (2010). Effects of climate changes on animal production and sustainability of livestock systems. *Livestock Science, 130*(1-3), 57-69.
- Nekudova, J. (2014). *A comparative analysis of consumer's perception of hotel restaurants in Great Britain and New Zealand (Relationship marketing study)* (Doctoral dissertation, Masarykova univerzita, Ekonomicko-správní fakulta).
- Nierenberg, D., & Mastny, L. (2005). Happier meals: rethinking the global meat industry (Vol. 171). *Worldwatch Institute.*
- Niles, M. T., Garrett, R. D., & Walsh, D. (2018). Ecological and economic benefits of integrating sheep into viticulture production. *Agronomy for sustainable development, 38*(1), 1.
- Niles, M. T., Garrett, R. D., & Walsh, D. (2018). Ecological and economic benefits of integrating sheep into viticulture production. *Agronomy for Sustainable Development, 38*(1), 1.
- Nix, T. W., & Gibson, J. G. (1989). Does a hospital's religious affiliation affect choice of hospital and patient satisfaction? *Journal of Health Care Marketing, 9*(2), 40-41.
- Noland, M. (2007). Religions, islam et croissance économique. *Revue française de gestion, 2*(2), 97-118.
- Norwood, F. B., & Lusk, J. L. (2011). A calibrated auction-conjoint valuation method: valuing pork and eggs produced under differing animal welfare conditions. *Journal of environmental Economics and Management, 62*(1), 80-94.
- Obermiller, C., & Spangenberg, E. (1989). Exploring the effects of country of origin labels: an information processing framework. *ACR North American Advances.*
- OECD. (2018). Towards better food policies. Retrieved 23 APRIL 2019 FROM <http://www.oecd.org/tad/policynotes/oecd-agriculture-brochure.pdf>
- Offenberg, J. (2015). Ants as tools in sustainable agriculture. *Journal of Applied Ecology, 52*(5), 1197-1205.

-
- Olson, R. (2017). Building sustainable agriculture: a new application of farming systems research and extension. *In Integrating Sustainable Agriculture, Ecology, and Environmental Policy* (pp. 53-66). Routledge.
- Oltmann, S. M. (2016). Qualitative interviews: A methodological discussion of the interviewer and respondent contexts. *In Forum: Qualitative Social Research (Vol. 17, No. 2, p. 1)*.
- Onwezen, M. C., Reinders, M. J., van der Lans, I. A., Sijtsema, S. J., Jasiulewicz, A., Guardia, M. D., & Guerrero, L. (2012). A cross-national consumer segmentation based on food benefits: The link with consumption situations and food perceptions. *Food Quality and Preference, 24*(2), 276-286.
- Opara, L. U. (2003). Traceability in agriculture and food supply chain: a review of basic concepts, technological implications, and future prospects. *Journal of Food Agriculture and Environment, 1*, 101-106.
- Padgett, D. K. (2016). *Qualitative methods in social work research* (Vol. 36). Sage Publications.
- Pauselli, M., Morbidini, L., Lasagna, E., Landi, V., & Giangrande, R. (2009). Consumer acceptance of Italian or New Zealander lamb meat: an Italian case study. *Italian Journal of Animal Science, 8*(sup2), 528-530.
- Pazzaglia, G., & Williams, C. (2012). Bring food and culture to the classroom. *Journal of School Health, 82*(12), 577-580.
- Pettinger, C., Holdsworth, M., & Gerber, M. (2004). Psycho-social influences on food choice in Southern France and Central England. *Appetite, 42*(3), 307-316.
- Pourramedani, A. (28 September 2016). Highest lamb meat production in ten years. *Norway Today*. Retrieved 08 March 2019 from <https://norwaytoday.info/finance/highest-lamb-meat-production-ten-years/>
- Punch, K. F. (2013). *Introduction to social research: Quantitative and qualitative approaches*. sage.
- Raineri, C., Nunes, B. C. P., & Gameiro, A. H. (2015). Technological characterization of sheep production systems in Brazil. *Animal Science Journal, 86*(4), 476-485.
- Rantsios, A. T. (2007). New approaches in inspection and control of safety and quality of meat products. *Tehnologija mesa, 48*(1-2), 29-35.
- Rawat, J., Sanwal, P., & Saxena, J. (2016). Potassium and its role in sustainable agriculture. *In Potassium solubilizing microorganisms for sustainable agriculture* (pp. 235-253). Springer, New Delhi.

- Regenstein, J. M., Chaudry, M. M., & Regenstein, C. E. (2003). The kosher and halal food laws. *Comprehensive reviews in food science and food safety*, 2(3), 111-127.
- Riaz, M. (1999). Examining the halal market. *Prepared Foods*, 168(10), 81-83.
- Risvik, E. (1994). Sensory properties and preferences. *Meat Science*, 36(1-2), 67-77.
- Ritchie, H., & Roser, M. (2017). Meat and Seafood Production & Consumption. Retrieved 2nd March 2019 from <https://ourworldindata.org/meat-and-seafood-production-consumption>
- Ross, L. C., Austrheim, G., Asheim, L. J., Bjarnason, G., Feilberg, J., Fosaa, A. M., ... & Mysterud, A. (2016). Sheep grazing in the North Atlantic region: A long-term perspective on environmental sustainability. *Ambio*, 45(5), 551-566.
- Rousset-Akrim, S., Young, O. A., & Berdagué, J. L. (1997). Diet and growth effects in panel assessment of sheepmeat odour and flavour. *Meat science*, 45(2), 169-181.
- Rust, J. M. (2018). The impact of climate change on extensive and intensive livestock production systems. *Animal Frontiers*, 9(1), 20-25.
- Salman, F., & Siddiqui, K. (2012, January). Muslim consumerism: Perceptual mapping from Pakistan. In *Global Islamic Conference, Global Islamic Marketing Association, Abu Dhabi* (pp. 105-110)
- Sañudo, C., Alfonso, M., San Julián, R., Thorkelsson, G., Valdimarsdottir, T., Zygoiannis, D., ... & Dransfield, E. (2007). Regional variation in the hedonic evaluation of lamb meat from diverse production systems by consumers in six European countries. *Meat Science*, 75(4), 610-621.
- Schwartz, S. J., Montgomery, M. J., & Briones, E. (2006). The role of identity in acculturation among immigrant people: Theoretical propositions, empirical questions, and applied recommendations. *Human development*, 49(1), 1-30.
- Sepúlveda, W. S., Maza, M. T., & Pardos, L. (2011). Aspects of quality related to the consumption and production of lamb meat. Consumers versus producers. *Meat science*, 87(4), 366-372.
- SGS. (23 November 2015). Recent facts on the global halal market and the role of halal certification. Retrieved 5th December 2018 from <https://www.sgs.com/en/news/2015/11/recent-facts-on-the-global-halal-market-and-the-role-of-halal-certification>
- Shackell, G. H. (2008). Traceability in the meat industry—the farm to plate continuum. *International journal of food science & technology*, 43(12), 2134-2142.

-
- Shah Alam, S., & Mohamed Sayuti, N. (2011). Applying the Theory of Planned Behavior (TPB) in halal food purchasing. *International journal of Commerce and Management*, 21(1), 8-20.
- Shao, C. Y., Baker, J. A., & Wagner, J. (2004). The effects of appropriateness of service contact personnel dress on customer expectations of service quality and purchase intention: The moderating influences of involvement and gender. *Journal of Business Research*, 57(10), 1164-1176.
- Sherwani, M., Ali, A., Ali, A., Hussain, S., & Zadran, H. G. (2018). Determinants of muslim consumers' Halal meat consumption: applying and extending the theory of planned behavior. *Journal of Food Products Marketing*, 24(8), 960-981.
- Shiflett, S. J. (March 2015). Lamb Demand Analysis. Retrieved 23 April 2019 from http://lambresourcecenter.com/wp-content/uploads/2015/09/ALB_Lamb_Demand_Analysis__March_2015.pdf
- Shyan Fam, K., Waller, D. S., & Zafer Erdogan, B. (2004). The influence of religion on attitudes towards the advertising of controversial products. *European Journal of marketing*, 38(5/6), 537-555.
- Simmons, J. (2009). Food economics and consumer choice.
- Skonhoft, A. (2008). Sheep as capital goods and farmers as portfolio managers: a bioeconomic model of Scandinavian sheep farming. *Agricultural Economics*, 38(2), 193-200.
- Skonhoft, A., Austrheim, G., & Mysterud, A. (2010). A bioeconomic sheep–vegetation trade-off model: An analysis of the Nordic sheep farming system. *Natural Resource Modeling*, 23(3), 354-380.
- Smith, G. C., Tatum, J. D., Belk, K. E., Scanga, J. A., Grandin, T., & Sofos, J. N. (2005). Traceability from a US perspective. *Meat science*, 71(1), 174-193.
- Soesilowati, E. S. (2011). Business opportunities for halal products in the global market: Muslim consumer behaviour and halal food consumption. *Journal of Indonesian Social Sciences and Humanities*, 3, 151-160. Retrieved 10 October 2018 from [file:///C:/Users/Ny/Downloads/7718-10590-1-PB%20\(2\).pdf](file:///C:/Users/Ny/Downloads/7718-10590-1-PB%20(2).pdf)
- Sood, J., & Nasu, Y. (1995). Religiosity and nationality: An exploratory study of their effect on consumer behavior in Japan and the United States. *Journal of Business Research*, 34(1), 1-9.
- Srivastava, P., Singh, R., Tripathi, S., & Raghubanshi, A. S. (2016). An urgent need for sustainable thinking in agriculture—An Indian scenario. *Ecological indicators*, 67, 611-622.

-
- SSB (2016, 2018). Statistics Norway. Retrieved 4 February 2019 from <https://www.ssb.no/en/jord-skog-jakt-og-fiskeri/statistikker/slakt/aar/2016-04-05#panel1>
- SSB (5 march 2019). Statistics Norway. Retrieved 15 march 2019 from <https://www.ssb.no/en/innvbef>
- Sturges, J. E., & Hanrahan, K. J. (2004). Comparing telephone and face-to-face qualitative interviewing: a research note. *Qualitative research*, 4(1), 107-118.
- Sumalde, Z. M., & Quillooy, K. P. (2015). Improving marketing efficiency through agricultural cooperatives: *successful cases in the Philippines* [1].
- Sungkar, I. (2008). The global Halal trade, trends and issues. *The Halal Journal*, 3(3), 32-34.
- Sungkar, I. (2009). The global halal food industry: revisited'. *The Halal Journal*, 4(3), 36-38.
- Syed, M. (2012). *Attitudes to New Zealand sheep meat and beef consumption amongst Muslim consumers in New Zealand: Implications for Halal exports to South-East Asia* (Master's thesis).
- Talib, Z., Zailani, S., & Zainuddin, Y. (2010). Conceptualizations on the dimensions for halal orientation for food manufacturers: a study in the context of Malaysia. *Pakistan Journal of Social Sciences*, 7(2), 56-61.
- Talyor, G. (17 November 2017). NORWAY TODAY. Retrieved 4th February 2019 from <http://norwaytoday.info/news/meat-consumption-still-increasing/>
- Taylor, A. W., Coveney, J., Ward, P. R., Dal Grande, E., Mamerow, L., Henderson, J., & Meyer, S. B. (2012). The Australian Food and Trust Survey: Demographic indicators associated with food safety and quality concerns. *Food Control*, 25(2), 476-483.
- The week (20Aug2018). *The week*. Retrieved 10th February 2019 from <https://www.theweek.co.uk/55587/eid-al-adha-2018-when-is-greater-eid-and-how-is-it-celebrated>
- Thomas, A., & Trentesaux, D. (2014). Are intelligent manufacturing systems sustainable?. *In Service Orientation in Holonic and Multi-Agent Manufacturing and Robotics* (pp. 3-14). Springer, Cham.
- Tieman, M. (2009). Halal transportation: the building blocks of a halal transportation system. *The Halal Journal*, 4(1).
- Tieman, M. (2011). The application of Halal in supply chain management: in-depth interviews. *Journal of Islamic Marketing*, 2(2), 186-195.

-
- Tieman, M. (2013). *The application of halal in supply chain management: principles in the design and management of halal food supply chains* (Doctoral dissertation, Universiti Teknologi MARA).
- Tieman, M., & Ghazali, M. C. (2014). Halal control activities and assurance activities in halal food logistics. *Procedia-Social and Behavioral Sciences*, 121, 44-57.
- Troy, D. J., & Kerry, J. P. (2010). Consumer perception and the role of science in the meat industry. *Meat science*, 86(1), 214-226.
- Uys, P., & Bisschoff, C. (2016). Identifying consumer buying preferences of beef. *Probl. Perspect. Manag*, 14, 256-263.
- Vagnoni, E., & Franca, A. (2018). Transition among different production systems in a Sardinian dairy sheep farm: Environmental implications. *Small Ruminant Research*, 159, 62-68.
- Van der Heijden, H., Verhagen, T., & Creemers, M. (2003). Understanding online purchase intentions: contributions from technology and trust perspectives. *European journal of information systems*, 12(1), 41-48
- Van der Spiegel, M., Van der Fels-Klerx, H. J., Sterrenburg, P., Van Ruth, S. M., Scholtens-Toma, I. M. J., & Kok, E. J. (2012). Halal assurance in food supply chains: Verification of halal certificates using audits and laboratory analysis. *Trends in Food Science & Technology*, 27(2), 109-119.
- Van Wezemael, L., Ueland, Ø., & Verbeke, W. (2011). European consumer response to packaging technologies for improved beef safety. *Meat science*, 89(1), 45-51.
- Varinli, İ., Erdem, E., & Avcılar, M. Y. (2016). Exploring the Factors Affecting Purchase Intention of Halal Certified Foods in Turkey: A PLS-Path Modeling Study. *European Journal of Business and Management*, 8(4), 68-78.
- Veblen, T. C. (1988). Food system trends and business strategy. *Food Technology*, 42(1), 126-130.
- Verbeke, W., & Viaene, J. (1999). Beliefs, attitude and behaviour towards fresh meat consumption in Belgium: empirical evidence from a consumer survey. *Food quality and preference*, 10(6), 437-445.
- Verbeke, W., Rutsaert, P., Bonne, K., & Vermeir, I. (2013). Credence quality coordination and consumers' willingness-to-pay for certified halal labelled meat. *Meat science*, 95(4), 790-797.
- Verhoef, P. C. (2005). Explaining purchases of organic meat by Dutch consumers. *European Review of Agricultural Economics*, 32(2), 245-267.

- Vermeir, I., & Verbeke, W. (2004). Sustainable food consumption: Exploring the consumer attitude-behaviour gap. *Ghent University, WP*, 4, 268
- Vermeir, I., & Verbeke, W. (2006). Sustainable food consumption: Exploring the consumer “attitude-behavioral intention” gap. *Journal of Agricultural and Environmental ethics*, 19(2), 169-194.
- Vukasovic, T. (2009). Consumer perception of poultry meat and the importance of country of origin in a purchase making process. *World's Poultry Science Journal*, 65(1), 65-74.
- Wan Hassan, W. M., & Awang, K. W. (2009). Halal food in New Zealand restaurants: an exploratory study. *International Journal of Economics and Management*, 3(2), 385-402.
- Waterhouse, A. (1996). Animal welfare and sustainability of production under extensive conditions—A European perspective. *Applied Animal Behaviour Science*, 49(1), 29–40. Retrieved 6 March 2019 from [https://doi.org/10.1016/0168-1591\(95\)00665-6](https://doi.org/10.1016/0168-1591(95)00665-6)
- WCED, S. W. S. (1987). World Commission on Environment and Development. Our common future.
- Webster, J. (2016). Livestock production systems: Animal welfare and environmental quality. *In Routledge Handbook of Food and Nutrition Security* (pp. 155-170). Routledge.
- Whab, A. R. (2004). Guidelines for the preparation of halal food and goods for the Muslim consumers. *AmalMerge (M) Sdn. Bhd*
- Wijnen, P. (15 OCTOBER 2018). A sheep farmer in Levanger got 2 Euro cent per Kilo. *NORWAY TODAY*. Retrieved 7 March 2019 from <https://norwaytoday.info/news/sheep-farmer-got-2-euro-cent-per-kilo/>
- Worldwide institute. (2019). Retrieved 4th January 2019 <http://www.worldwatch.org/global-meat-production-and-consumption-continue-rise>
- Xazela, N. M., Hugo, A., Marume, U., & Muchenje, V. (2017). Perceptions of Rural Consumers on the Aspects of Meat Quality and Health Implications Associated With Meat Consumption. *Sustainability*, 9(5), 830.
- Yener, D. (2015). Factors that affect the attitudes of consumers toward halal-certified products in Turkey. *Journal of Food Products Marketing*, 21(2), 160-178.
- Zailani, S., Arrifin, Z., Abd Wahid, N., Othman, R., & Fernando, Y. (2010). Halal traceability and halal tracking systems in strengthening halal food supply chain for food industry in Malaysia (a review). *Journal of food Technology*, 8(3), 74-81.

-
- Zander, K., Stolz, H., & Hamm, U. (2013). Promising ethical arguments for product differentiation in the organic food sector. A mixed methods research approach. *Appetite*, 62, 133-142.
- Zulfakar, M. (2015). Australia's halal meat supply chain (AHMSC) operations: supply chain structure, influencing factors and issues. Retrieved 9 September 2018 from <https://researchbank.rmit.edu.au/eserv/rmit:161363/Zulfakar.pdf>
- Zulfakar, M. H., Anuar, M. M., & Ab Talib, M. S. (2014). Conceptual framework on halal food supply chain integrity enhancement. *Procedia-Social and Behavioral Sciences*, 121, 58-67.
- Zulfakar, MH, M Anuar, M & Talib, MSA 2012, Conceptual framework on halal food supply chain integrity enhancement, paper presented to International Halal Conference 2012, Putra World Trade Centre Kuala Lumpur, Malaysia, 4-5 September 2012

Appendix I:

Part 1: Demography

Date: _____ ID #: _____

Gender: Male Female

Location in Oslo, or name of the place:

Residence in Norway since:

If you were born in Norway, when did your parents arrive in Norway (which generation of refugees):

What is your occupation:

What is your age (years):

How many household members are currently in your home:

What is your
education: _____

Are you married / or living with partner: Yes No

If yes, what is the age of your partner / spouse

What is his / her education:

What is the occupation of your partner /
spouse: _____

What is your annual household income (1000 NOK) before tax:

<250 250 – 500 500 – 750 750 – 1000

1000 – 1500 >1500 I do not know Do not want to answer

How many members are in your family (Total
individuals): _____

Do you have kids: Yes No

If yes, then total number of kids (>18 years old):

Highest education level of kids:

<input type="checkbox"/> Kindergarden	<input type="checkbox"/> Grade 1-7 (Barneskole)	<input type="checkbox"/> Grade 8-10 (Ungdomskole)	<input type="checkbox"/> Uper- seecodary school
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Grocery and cooking

Who is doing the grocery most of the time: _____

Who did grocery last week? _____

Who is cooking at home most of the time: _____

Who cooked meal at home yesterday _____

Part 2: Eating preferences/habits

How do you describe a normal working day in terms of eating habits? _____

How many times do you eat food/day normally (home & office)?

1 2 3 4 Do not know

How many meals do you eat while at home during weekdays?

How many meals do you eat while at work?

How many meals you have eaten yesterday? _____

Breakfast Brunch Lunch High-tea Dinner
 Evening snack/tea

How do you describe your eating preferences at weekend/holiday? _____

What was your eating pattern (number of meals) during last weekend? _____

Do you eat at home or outside during last weekend? Home
 Outside

How many times per day, do you eat while at home during weekend/holiday?

1 2 3 4 Do not know

How frequently you dine-outside at weekend/holiday.

1-time per week 2-times per week >3 times per week
 Occasionally Do not eat outside Do not know

Reason: _____

Do you think normal working-day eating habits are different from the weekends/holidays?

Which of the followings best presents your holiday eating habits?

Breakfast Brunch Lunch High-tea Dinner
 Evening snack/tea

What are normal food cooking practices at your home?

Do you prefer or practice any special cooking method at home?

What exactly is a Pakistani-traditional food in your opinion?

Transferred from grandparents to you or from previous generations or particular to some specific area _____

How you differentiate a traditionally cooked food from non-traditional food? (Taste, smell, ingredients, presentation, process, preparations)

How do you describe a traditional food cooking?

What you think about the main elements of Pakistani Traditional food cooking? _____

- Curing Salting Smoke cooking Use of organs
 Parts of lams Whole lamb Meat cuts Others Do not know

When and where do you prefer to eat traditional Pakistani food?

How do you differentiate traditional cooked food from fast food and other non-traditionally cooked food?

From which species of animal you prefer to eat meat. _____

Did you like any specific animal / portion / meat cut for traditional cooking?

If yes, then why? _____

If no, then why? _____

How do you describe the traditional food cooking method?

Did you follow any cooking booklet / recipe while cooking? _____

If yes, then specify name _____

If no, then why _____

Would you like to know how to cook meat from an expert chef?

If yes, then please mention _____

If no, then why _____

Which of the followings better presents your working day food preferences during last week?

Traditionally cooked food:

- Everyday more than once a week Once a week Never

Fast food:

- Everyday More than once a week Once a week Never

Ready to eat food:

- Everyday More than once a week Once a week Never

What is your relation to typical Norwegian food? And what is typical Norwegian food to you?

What are your preferences regarding halal/non-halal meat category?

Which of the following applies to you?

I only eat halal meat

I occasionally eat non-halal meat, but not pork

I eat non-halal meat, but not pork

I eat all kinds of meat

What kind of meat do you eat mostly at home?

Lamb, Beef, Chicken, Fish, Pork,

What kind of meat do you eat the mostly, while outside?

Lamb, Sheep, Beef, Chicken, Fish, Pork

Do you specifically prefer any animal from below category, for meat purpose?

Male lamb	Female lamb	Male sheep	Female sheep	Sex/meat type does not matter
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Any reason for the above

comment _____

How many times do you eat lamb/sheep meat at home?

<once/month	Once/month	3-4 times/per month	4-8 times/month	1-2 times/day	In all meals/day
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Do you prefer that the lamb/sheep fed on (feeding system):

Natural grazing in mountains (fresh green grass)	Grazing indoor (concentrates and hay)	Both	Does not matter
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Is origin of meat is important for you?

Norwegian origin

Swedish origin

New Zealand origin

Any foreign origin

Does not matter

Do not know

Other origin, specify

	Not important			Very importance	
Homemade dinner every day	1	2	3	4	5
Homemade dinner at weekend	1	2	3	4	5

Reason for the above point 1:

Reason for the above point 2:

How frequently do you dine-out?

Everyday	Every second day	Twice a week	Once a week	Three times per month	Once a month	Occasionally	Never
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Specify any reason:

How frequently do you eat ready-to-eat meat products/dishes?

Everyday	2-3 times/week	3-4 times/month	1-2 times/month	Occasionally	Never
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Specify any reason:

If ready-to-eat traditional Pakistani dishes were more available, I would have bought it more

Do not agree 1 2 3 4 5 Totally agree often.

Specify any reason:

–
Part 3: Consumers' purchase intentions:

Which kind of meat/meat products are important for you when you purchase?

Frozen meat

Fresh meat

Minced meat (fresh/frozen)

Boneless meat (fresh/frozen)

Whole meat portions (fresh/frozen)

Special meat cuts (fresh/frozen)

Fat free meat (fresh/frozen)

Moderate fat meat (fresh/frozen)

Which attributes are important for you?

Packaging/Labeling (logo)/product info

Which kind of meat packs you prefer (small/large packing)

Logo, Price, Brand, Convenience/availability/location, Taste, Quality, Animal welfare and Authenticity

What logo you prefer most while purchasing the halal meat

Do you prefer any logo on meat product?

Which logo and any reason for that _____

If no, then why _____

From where you buy meat today?

Local butcher, Super market, Middle man (based on personal links), Any other, (specify) __

From where you prefer to buy meat? _____

Any reason _____

Specify any special cut if like meat cuts _____

If you like special meat cuts how much you can pay extra above normal meat price? _____

Part 4: Meat consumption:

How many times do you cook meat at home: _____

Once in a month	Three times per month	Once a week	Twice a week	Every second day	Every day	Several times a day
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<0.5	0.5-1	1	1-2	> 2	Do not know
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How much is your meat (Kg) consumption per meal for the household:

What are your cooking preferences?

- Cook once every day
- Cook once and finish eating in 2 days
- Cook once and finish eating in 3 days

Ready to eat / cook products:

What do you think about ready to eat dishes? _____

Do you like ready to eat dishes?

- Yes
- No

Name some famous ready to eat dishes? _____

Traditional Pakistani dishes

Semi-cooked meat dishes

Marinated meat portions or marinated meat

Minced meat with spices added

Boneless meat pieces

Meat balls

Do you prefer any specific spice/ingredient in your food? _____

Is there any ingredient you do not wish to eat or add in ready to eat dishes? _____

Traditional cooking preferences:

How you wish to foresee any traditional ready to eat dish in the Norwegian market in future?

Any additional preference / suggestion that you wish to mention at the end of interview?